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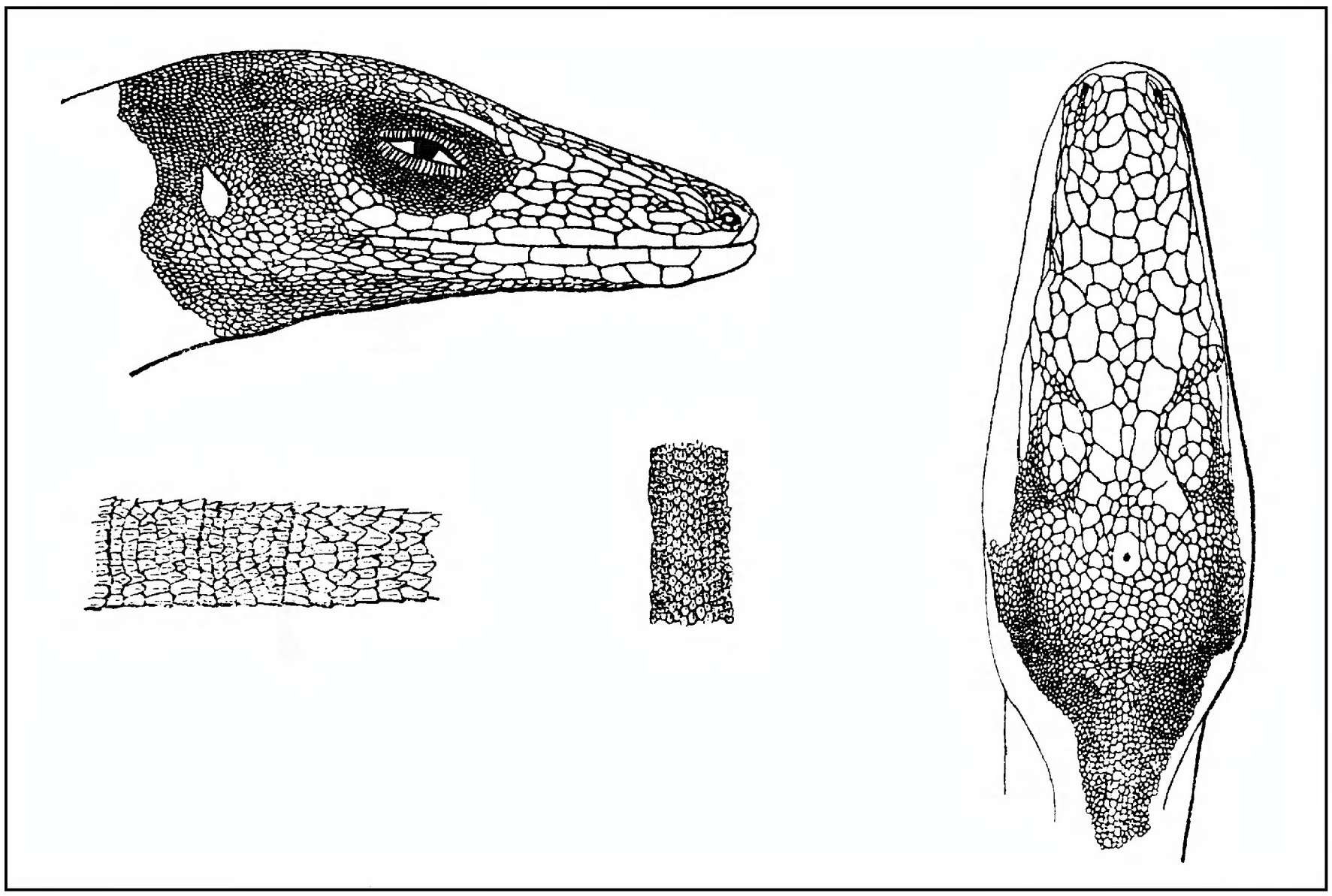

BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY
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Current Distribution and Status of Amphibians and Reptiles in Kankakee County, Illinois

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Introduction

Kankakee County is located in northeastern Illinois approximately 90 miles south of Chicago. It is approximately 68 sq mi in area and is primarily farmland (72.4%; Illinois Department of Natural Resources, 1996). Rural grassland comprises 16.4% of the county, wetlands 1.2%, and forest or other woodland 4.8% (Illinois Department of Natural Resources, 1996). The Kankakee River flows from Indiana, merges with the Iroquois River in the south-central region of the county, and then flows northwest into Will County. These two major river systems divide the county into north, west and southeast sections (Figure 1).

Kankakee County is located at the northeast edge of the Grand Prairie Division, a vast, nearly level plain comprised mostly of prairie prior to settlement. The Kankakee Sands Area Section includes most of the southeast section and continues as a broad band along the Kankakee River into the extreme northwest end of the county (Illinois Nature Preserves Commission, 1973). Large areas of sand were deposited during peak meltwater discharge from the Valparaiso Glacier. This glacial meltwater was then diverted into the Kankakee Valley causing the Kankakee Flood (Wilman, 1971).

In pre-settlement times, the Kankakee Sands Area was comprised mainly of sand prairie and marsh, with scrub oak forests and savannas dominated by black oak on drier, sand dune deposits (Illinois Nature Preserves Commission, 1973). Today, extensive sand savanna remnants still occur in the southeast section of the county, although most of the lowlands that were sand prairie and marsh have been ditched, drained and converted for agriculture. In the northwest portion of the county, much of the landscape has been modified by large-scale strip mining operations.

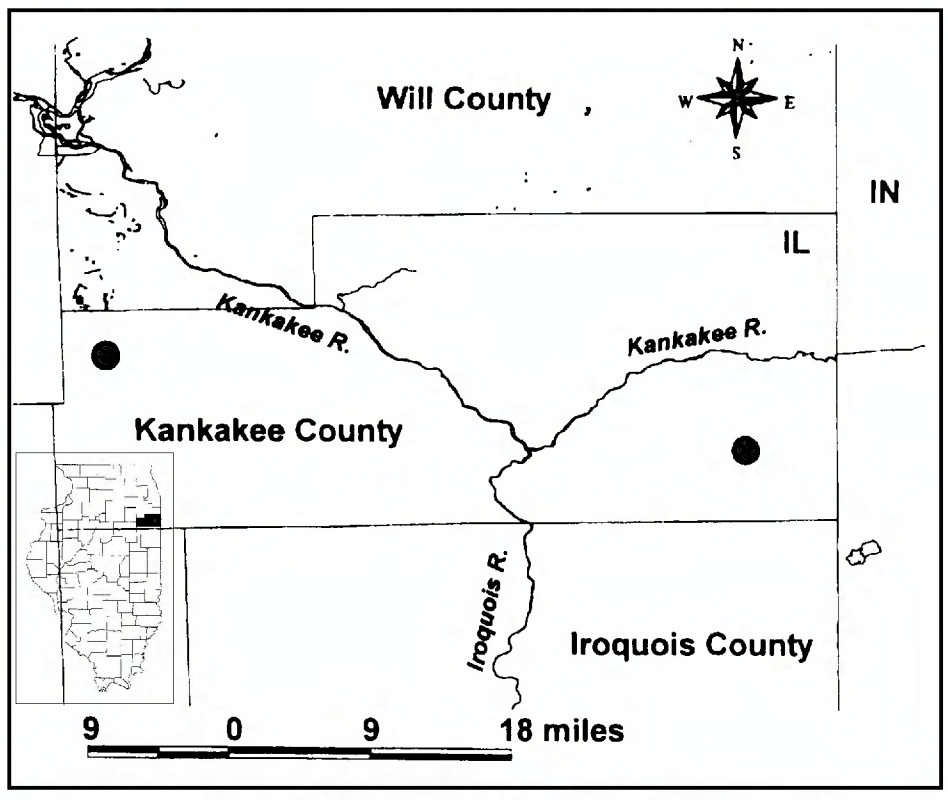

Figure 1. Location of Kankakee County (inset) and approximate locations of study areas (solid dots).

Knowledge of the Kankakee County herpetofauna is based on pre-1989 records from the southeastern part of the county, particularly in Smith (1961). Field work at Kankakee–Momence Wetlands in Momence Township in 1989–1990 yielded some records (Anton, unpubl. data). In 2002, TGA conducted additional work in Essex Township in northwestern Kankakee County in conjunction with surveys of several sand area sites in southwestern Will County (Anton, 2002). The senior author initiated a survey in 2001 at sand savanna remnants in Pembroke and St. Anne Townships in southeastern Kankakee County (Mauger, 2002). This survey represents the most recent and extensive study of the herpetofauna of the sand areas of Pembroke Township since specimens were first collected in the region in the late 1930s. Here we discuss the results of these surveys, compare our results with historical records and summarize the current status of the herpetofauna of Kankakee County.

Materials and Methods

Surveys were conducted by TGA in Essex Township from 1 September through 31 October 2002. A group of four roads formed a route that was regularly surveyed for dead-on-the-road (DOR) specimens, with some short duration (15–20 min, 0.25–0.5 mi) stops consisting of walks along road shoulders and strip mine lake shorelines. Surveys from June 2001 through September 2002 conducted by DM centered in Pembroke Township in southeastern Kankakee County. A 60-acre preserve (Sweetfern Savanna, Pembroke Township) was surveyed using visual encounter, minnow trapping and dip-netting for amphibian larvae, hoop net trapping for turtles, cover panel transects comprised of corrugated metal sheets, and daytime road cruising for DOR specimens.

Night road cruising was used to detect calling frogs and to document the distribution of spring peepers (*Pseudacris crucifer*) and gray treefrogs (*Hyla versicolor* complex). Road census routes were concentrated in Pembroke and extreme eastern St. Anne Townships. Treefrog survey work was also conducted in Momence, southern Yellowhead, Aroma, Kankakee, Limestone, Otto, Salina, Pilot, Essex and Norton Townships. Gray treefrog calls were recorded at some sites with a Radio Shack CTR-112 hand-held cassette recorder. Air and water temperature was recorded with a Radio Shack 63-1024 indoor-outdoor digital thermometer. Canary software (Cornell Bioacoustics Research Program) was used to calculate pulse rate of calls and confirm species identification (i.e., *Hyla versicolor* or *H. chrysoscelis*).

All specimens and frog call recordings were deposited in the Illinois Natural History Survey (INHS) and Field Museum of Natural History (FMNH) herpetology collections. Research collections having preserved specimens of Kankakee County amphibians and reptiles were queried. Records containing specific localities and dates of collection were received and analyzed from the Chicago Academy of Sciences (CA); Field Museum of Natural History; Illinois Natural History Survey; Museum of Vertebrate Zoology (MVZ); Tulane University (TU); and the United States National Museum (USNM).

Results

Surveys in northwestern Kankakee County consisted of 10 trips totaling 9 field hours and 72 road survey miles. A total of 16 species (8 amphibians, 8 reptiles) were found (Table 1). Surveys at Sweetfern Savanna in Pembroke Township consisted of 25 trips totaling 54.4 field hours, 189 salamander trap days and 28 turtle trap days. In addition, 80.1 mi of day perimeter road surveys were driven on 18 trips and 46.5 mi of night road perimeter survey in 11 trips. Day road surveys of outlying areas totaled 334.7 mi on 12 trips, while night surveys of outlying roads covered 247.1 mi on 11 trips. A total of 18 species (8 amphibians, 10 reptiles) were found within the Pembroke Township region, two of which represented new county records; the spring peeper (*Pseudacris crucifer)* and bullfrog (*Rana catesbeiana*) (Table 1). In addition, 127 miles of road surveys in western Kankakee County on two trips yielded two additional species (*Elaphe vulpina*, *Acris crepitans*) that were not found in Pembroke Township.

Twenty-three species were encountered during the survey (10 amphibians, 13 reptiles, Table 1). Only 11 species (6 amphibians, 5 reptiles) were found in both study regions. Five species found only in the northwest study area or western Kankakee County while conducting treefrog surveys included the cricket frog (*Acris crepitans*), plains leopard frog (*Rana blairi*), western foxsnake (*Elaphe vulpina*), northern watersnake (*Nerodia sipedon*) and smooth greensnake (*Opheodrys vernalis*) (Table 1). Eight species (3 amphibians, 5 reptiles) found in the southeastern portion of Kankakee County included the American toad (*Bufo americanus*), Fowler's toad (*B. fowleri*), spring peeper (*Pseudacris crucifer*), snapping turtle (*Chelydra serpentina*), ornate box turtle (*Terrapene ornata*), six-lined racerunner (*Cnemidophorus sexlineatus*), glass lizard (*Ophisaurus attenuatus*) and Dekay's brownsnake (*Storeria dekayi*) (Table 1).

Discussion

Overview and species representing new county records:

Of the 32 species (10 amphibians, 22 reptiles) documented in Kankakee County prior to our surveys (Table 1), 23 (10 amphibians, 13 reptiles) were found during this survey. Two amphibian species are new county records (*Pseudacris crucifer*, *Rana catesbeiana*; Mauger, 2002; Petzing et al., in press). Although *R. catesbeiana* occurs throughout Kankakee County wherever permanent bodies of water occur and is more abundant than our results reflect, the distribution of *P. crucifer* was restricted to the greater Pembroke Savanna area, truncating at a ditch about ¼mi from the nearest forested habitat in Section 27 of St. Anne Township (Mauger, 2002).

Species with historical records not found in recent surveys:

Eleven species (2 amphibians, 9 reptiles) were not found (Table 1). Five were turtles, including four that are typically restricted to larger river and stream systems (spiny softshell, *Apalone spinifera*; northern map turtle, *Graptemys geographica*; red-eared slider, *Trachemys scripta*, and stinkpot, *Sternotherus odoratus*). The Blanding's turtle (*Emydoidea blandingii*) requires large wetlands, ponds and backwater marshes. These species are likely to occur within the Kankakee River and its backwaters, or within the larger strip-mine lakes in northwestern Kankakee County. All five species were absent in smaller streams and ditches around Sweetfern Savanna in Pembroke Township (Mauger, 2002).

Two salamanders, the two-lined salamander (*Eurycea cirrigera*) and small-mouthed salamander (*Ambystoma texanum*) are uncommon or have restricted ranges. *Eurycea cirrigera* is known from Kankakee River State Park (KRSP) but precise locality data are lacking. The five specimens (MVZ 92027-31) may have originated from the Will County portion of the park. *Eurycea cirrigera* has been documented recently in KRSP in southwestern Will County. This population is disjunct from those a few hundred miles south along the Illinois and Indiana state line (Mierzwa, 1989). In Will County, *E. cirrigera* is highly localized and restricted to small, rocky, seep-fed drainages along the Kankakee River (Mauger et al., 2000).

Ambystoma texanum is known historically from one specimen collected from northwestern Kankakee County. Its occurrence in or near areas along the Kankakee River in far northwestern Kankakee County appears plausible. It occurs in southwestern Will County at the confluence of the Du Page and Des Plaines Rivers (Mauger and DalPonte, 1996; Anton, 2001). However, Minton (2001) noted that in Indiana *A. texanum* occurs in forested bottomlands along larger streams and rivers. He did not find it in areas of sand soils or in sand areas in northwestern Indiana. Surveys at Sweetfern Savanna in Pembroke Township failed to detect this species, further suggesting its absence from the sand areas in eastern Kankakee County. However, there are substantial forested bottomlands with backwater swamps and uplands with ephemeral wetlands in areas along the Kankakee River that appear to provide suitable habitat. Since our study did not include surveys for turtles or salamanders along the Kankakee River, we are unable to assess the distribution and current status for these taxa in Kankakee County.

The western hog-nosed snake (*Heterodon nasicus*) is known from Kankakee County based on a single specimen (INHS 12564) collected in 1996 from Pembroke Township. They were believed introduced by the release of an undetermined number of individuals obtained from elsewhere in Illinois (Phillips et al., 1999). Survey work in Pembroke Township yielded four eastern hog-nosed snakes (*H. platirhinos*) including one only 0.95 mi east of the *H. nasicus* locality. We found no *H. nasicus* and none have been collected since 1996. More survey work is needed to clarify the status of *H. nasicus* in

Table 1. Checklist of Kankakee County herpetofauna. Area legend: NW = northwestern townships; SE = southeastern townships. Status legend: C = common; LC = locally common; LU = locally uncommon; U = uncommon; R = rare; ND = not determined and/or not documented by specimens.

Species	Current Records			Historic Records		Status
	NW	SE	Not found		Year(s)	
Amphibians:						
Ambystoma texanum (small-mouthed salamander)			x	x	1957	ND
Eurycea cirrigera (southern two-lined salamander)			x	x	pre-1980	ND
Acris crepitans (cricket frog)	x			x	1922-1960	LC
Bufo americanus (American toad)	x	x		x	1960	C
Bufo fowleri (Fowler's toad)		x		x	1936-1942	LC
Hyla versicolor (gray treefrog)	x	x		x	1938	LC
Pseudacris crucifer (spring peeper)		x				LC
Pseudacris triseriata (chorus frog)	x	x		x	1938, 1960	C
Rana blairi (plains leopard frog)	x			x	1938	LC
Rana catesbeiana (American bullfrog)	x	x				C
Rana clamitans (green frog)	x	x		x	1948	C
Rana pipiens (northern leopard frog)	x	x		x	1938, 1960	LC
Total Amphibians	**8**	**8**	**2**	**10**		
Reptiles:						
Apalone spinifera (spiny softshell)			x	x	1939	ND
Chelydra serpentina (snapping turtle)		x		x	1937-1939	C
Chrysemys picta (painted turtle)	x	x		x	1938-1939	C
Emydoidea blandingii (Blanding's turtle)			x	x	1931-1954	ND
Graptemys geographica (northern map turtle)			x		1934-1935	ND
Sternotherus odoratus (stinkpot)			x	x	1939-1960	ND
Terrapene carolina (eastern box turtle)			x	x	pre-1980?	ND
Terrapene ornata (ornate box turtle)		x		x	1935-39	R
Trachemys scripta (red-eared slider)			x	x	1924	ND
Cnemidophorus sexlineatus (six-lined racerunner)		x		x	1931-1975	LC
Ophisaurus attenuatus (slender glass lizard)		x		x	1967	LU
Coluber constrictor (eastern racer)	x	x		x	pre-1940	LC
Elaphe vulpina (western foxsnake)	x			x	pre-1951	LC
Heterodon nasicus (western hog-nosed snake)			x	x	1996	ND
Heterodon platirhinos (eastern hog-nosed snake)	x	x		x	1933-1974	LC
Lampropeltis triangulum (milksnake)			x	x	1939	ND
Nerodia sipedon (northern watersnake)	x			x	1948-1960	LC
Opheodrys vernalis (smooth greensnake)	x			x	1989	U
Pituophis catenifer (bullsnake)	x	x		x	1935-1974	C
Storeria dekayi (DeKay's brownsnake)		x		x	1933-1989	U
Thamnophis radix (plains gartersnake)			x	x	1939-1950	ND
Thamnophis sirtalis (common gartersnake)	x	x		x	1933	LC
Total Reptiles	**8**	**10**	**9**	**22**		
Total Species	**16**	**18**	**11**	**32**		

southeastern Kankakee County.

Two other snake species that were not found included the eastern milksnake (*Lampropeltis triangulum*) and plains gartersnake (*Thamnophis radix*). *Lampropeltis triangulum* is represented by a single 1939 museum specimen (FMNH 31768) from Rockville Township. Based on records in nearby Will County, we believe *L. triangulum* occurs in Kankakee County townships bordering the Kankakee River where wooded, rocky ravines and open woodland habitats predominate. An *L.*

triangulum (FMNH 261714) was found DOR on Rte. 113, 4 miles north of the Kankakee–Will county line in Will County during surveys by TGA. Two others were found DOR during previous surveys in 1995: one along Rte. 102, 3.5 mi north of the county line; the other on Warner Bridge Road, on the Kankakee–Will county line (Anton, 2002).

Thamnophis radix is known from five specimens collected from 1939–1950. It is rare in the Indiana Dunes in northwest Indiana (Minton 2001). They were not found in surveys of the sand areas of Pembroke Township (Mauger, 2002) or during road surveys in Essex Township (Anton, 2002). It undoubtedly occurs in Kankakee County and is probably more common than our results indicate, especially in agricultural lands outlying the sand areas and those that were formerly silt-loam prairie prior to settlement.

Comparison of Pembroke and Essex Township survey results:

In comparing the results of the two surveys, similarities and differences were apparent. Reptiles associated with sand areas, such as the bullsnake (*Pituophis catenifer*), racer (*Coluber constrictor*) and eastern hog-nosed snake (*Heterodon platirhinos*) were found in both Pembroke and Essex Townships. *Pituophis catenifer* was the most frequently encountered snake in Pembroke Township (34 observations), suggesting that it was both widely distributed and at high population densities in southeastern sand areas (Mauger, 2002). Its distribution and abundance outside the sand region is unknown, but a DOR recovered by DM in 1996 along I-57 suggests that *P. catenifer* occurs north of the Kankakee River.

Coluber constrictor was under-represented in museum collections, but frequently encountered both alive and DOR in Pembroke and Essex Townships during our surveys. Four *Heterodon platirhinos* were found in Pembroke Township and one in Essex Township. The locality of a 1931 juvenile specimen (CA 503) is given as "Wilmington" and may be from Will County. Two other historical specimens are from Pembroke Township. Both species appear to be largely confined to sand areas in the southeastern and northwestern regions of Kankakee County.

DeKay's brownsnake (*Storeria dekayi*) and the common gartersnake (*Thamnophis sirtalis*) are widespread and abundant elsewhere in northern Illinois but were inexplicably rare in our surveys. *Thamnophis sirtalis* was encountered in Essex Township (n = 5), and less frequently in Pembroke Township (n = 2; Mauger, 2002). Only two *S. dekayi* were found in Pembroke Township (Mauger, 2002). They were expected to occur but not found in Essex Township and were correspondingly rare in southwestern Will County (Anton, 2002). There are three historical museum specimens of *S. dekayi* from Kankakee County.

Storeria dekayi was notably absent in typical sand prairie and savanna habitats in Pembroke Township. Two specimens were found in outlying agricultural lands that, although comprised of sandy loam soils, once represented the bed of an extensive glacial lake that covered the region 15,000–20,000 years ago. In eastern Kankakee County, *Storeria dekayi* is probably sparsely distributed and restricted to larger expanses of agricultural land away from the main system of dune ridges and savanna remnants (Mauger, 2002). Minton (2001) noted dispersion of this species across a wide range of habitats, but it appeared to prefer areas of open grassland with considerable amount of soil moisture. Despite the paucity of encounters, we believe *S. dekayi* and *T. sirtalis* are more widespread and abundant in agricultural areas of the county that were silt-loam prairie prior to settlement.

Snakes not strictly associated with sand areas, the western foxsnake (*Elaphe vulpina*), smooth greensnake (*Opheodrys vernalis*) and northern watersnake (*Nerodia sipedon*), were infrequently encountered during our surveys. *E. vulpina* was not found in the Pembroke Township sand areas, although some were found some 20 miles to the west during work in conjunction with countywide treefrog survey work. If they are present in the Pembroke sand areas, they presumably occur at low population densities. They probably occur closer to the Pembroke sand areas than our results indicate, most likely in larger expanses of agricultural lands west of Hopkins Park, or closer to and north of the Kankakee River. Several records were obtained in Essex Township, but these were within areas modified by strip mining. Although *E. vulpina* and *P. catenifer* appear sympatric in Essex Township, we suggest *E. vulpina* is the dominant large snake species in agricultural or strip-mined lands with silt-loam soils, while *P. catenifer* is dominant in sand prairie and savanna habitats.

An *Opheodrys vernalis* (INHS 11883) was collected near Momence in 1989. During our surveys, one specimen (FMNH 262030) was found in Essex Township, but they were not found in the sand areas of Pembroke Township (Mauger, 2002). Minton (2001) found them in sandy scrub oak woods, but also emphasized that they occur in tallgrass prairie remnants persisting along railroads and in cemeteries in Indiana. In Illinois, it appears to have been a prairie inhabitant and today persists in isolated populations where old field vegetation or remnant prairie occurs. In Will County, *O. vernalis* is restricted to a handful of widely scattered localities. They are infrequently encountered in old field and prairie remnants along the Illinois Central Gulf Railroad in eastern Will County (D. Mauger, pers. obs.), which extends south into Kankakee County through Momence.

Three *Nerodia sipedon* were found in Essex Township, but none were encountered in Pembroke Township. The paucity of records reflects minimal fieldwork in wetland and marsh areas where this species would be more regularly encountered. Surveys in Essex Township included visual encounter searches at several large strip mine pits. However, visual surveys in Pembroke Township were restricted to Sweetfern Savanna, which has few wetlands and some small ditches. They undoubtedly occur along the Kankakee River, and probably occur in Pembroke Township in some of the larger stream and ditch systems. Despite the low number of observations, we believe *N. sipedon* to be more widespread and common than our results show.

The ornate box turtle (*Terrapene ornata*), slender glass lizard (*Ophisaurus attenuatus*) and six-lined racerunner (*Cnemidophorus sexlineatus*) were found only in Pembroke

Township (Mauger, 2002). The Field Museum catalog entry for a 1937 specimen (FMNH 26400) of *T. ornata* reads "Will County, a few miles north of Bonfield." This record is cited by Necker (1939). The Will County line is 3.75 mi north of Bonfield. Eight other museum specimens came from Pembroke Township. This indicates that *T. ornata* occurred historically in northwestern Kankakee County and may have been more common in southeastern Kankakee County. Only one *T. ornata* was found during the Pembroke Township survey (Mauger, 2002), suggesting the species is still present but very rare. Surveys in Essex Township (Anton, 2002) involved far less effort compared to the Pembroke Township surveys, and a determination of the status of the ornate box turtle in northwestern Kankakee County was not possible. However, there is some evidence that *T. ornata* has declined in southwestern Will County, particularly Braidwood Dunes and Savanna and Sandridge Savanna Nature Preserves (Anton, 2002; Mauger, pers. obs.).

Several records of *Ophisaurus attenuatus* were obtained in Pembroke Township (n = 7; 1 alive, 6 DOR). *O. attenuatus* is secretive and hard to find by any method unless effort is intensive and spans an entire activity season. Surveys for *Ophisaurus* were based heavily on road cruising and recovery of DORs. *Cnemidophorus sexlineatus* was the most frequently observed reptile at Sweetfern Savanna in Pembroke Township. They were easily observed when active at the surface in suitable habitat. Both lizard species are restricted to sand prairie and savanna in Kankakee County and also occur in sand areas southwestern Will County. We believe they occur locally in portions of Essex Township where remnants of sand prairie and savanna still exist, and where strip-mining did not extensively alter the landscape.

Differences in anuran distribution were also apparent between the study areas. While Fowler's toads (*Bufo fowleri*) and American toads (*B. americanus*) were both found in Pembroke Township, only *B. americanus* was found in Essex Township. Although the distribution of both species overlapped in southeastern Kankakee County, there was an inverse relationship in distribution with greater numbers of *B. fowleri* centered within the complex of sand prairie and savanna remnants east and south of Hopkins Park. Smith (1961) noted that *B. fowleri* was largely confined to sand areas south and east of the Iroquois and Kankakee Rivers. *Bufo americanus* occurred in small numbers in widely scattered pockets in this area, but tended to replace *B. fowleri* in outlying agricultural land to the north and west of Hopkins Park.

Bufo americanus was occasionally heard calling in late May by DM in Essex and Norton Townships during road surveys to document eastern gray treefrog localities. A large chorus of both toad species was heard calling on 28 May 2002 in a borrow pit west of the Iroquois River in Otto Township. Specimens of *B. fowleri* were collected on a follow-up visit there on 29 May (INHS 18414-15). The Otto Township location represents the northwestern-most extension of its range in Kankakee County to date. *Bufo fowleri* also has not been found in the sand areas of southwestern Will County. Despite our documentation of *B. fowleri* west of the Iroquois River, we believe *B. americanus* is the dominant toad species in western Kankakee County.

Two cricket frogs (*Acris crepitans*) were collected in Essex Township, but none were found in southeastern Kankakee County. Although a few isolated localities were found during auditory survey work for gray treefrogs in outlying areas of Essex and Salina Townships, the numbers of calling *A. crepitans* at these sites were few. The largest populations appear to be restricted to the complex of strip mine pits in Essex Township. However, backwater wetlands and swamps along the Kankakee River were not surveyed and there is potential for the species to occur there, particularly in wetlands extending east of Momence to the Indiana–Illinois line.

The gray treefrog (*Hyla versicolor*) is known historically from museum specimens collected from Pembroke Township in the late 1930s. We found it to be widely scattered throughout Pembroke, St. Anne, Momence, and Aroma Townships in the east, and Otto, Salina, Essex and Norton townships in the west. However, within this broad distribution, they appear more concentrated in sand savanna remnants in Pembroke and St. Anne Townships, wooded areas and/or nearby wetlands along the Kankakee and Iroquois Rivers, and within the Horse Creek watershed in Essex, Salina and Limestone Townships in western Kankakee County. We collected and tape recorded specimens from several localities and all were referable to *H. versicolor*.

Although breeding populations of *H. versicolor* were distributed widely across the county, most of the localities consisted of choruses of fewer than a dozen males. It was noticeably absent in much of the outlying agricultural lands. A few large choruses that could be heard from a distance up to a mile away were encountered in Essex, Salina and Pembroke Townships. A huge chorus comprising hundreds of individuals was encountered in a backwater swamp on the south side of the Kankakee River on the east side of the Illinois–Indiana state line.

The northern leopard frog (*Rana pipiens*) and plains leopard frog (*R. blairi*) were found during our surveys. No *R. blairi* were encountered in Pembroke Township (Mauger, 2002), but a 1938 museum specimen of *R. blairi* (CA 4353) from Pembroke Township exists. *Rana blairi* is infrequently found in eastern Will County, and is probably rare in eastern Kankakee County. Only a few specimens of *Rana pipiens* were encountered at widely scattered localities in the Pembroke region, but numerous ditches along roadsides and agricultural fields appear to provide good habitat. However, the number and size of breeding aggregations seemed to indicate it is not abundant. The three observations of calling males in Pembroke Township were of single individuals.

Rana blairi and *R. pipiens* were sympatric in Essex Township. *Rana blairi* was regularly seen along the shoreline of strip mine lakes or ditches along roadsides near strip mines. The strip mine region in Essex Township appears to be a stronghold for *R. blairi* in western Kankakee County. Some individuals observed in the field showed variation in ground color, degree of inset and interruption of dorsolateral folds, or other characters that suggest hybridization. This phenomenon

warrants further investigation.

Species of possible occurrence in Kankakee County:
Species not found by us or not historically documented with voucher specimens include the blue-spotted salamander (*Ambystoma laterale*), tiger salamander (*A. tigrinum*), mudpuppy (*Necturus maculosus*), central newt (*Notophthalmus viridescens*), lesser siren (*Siren intermedia*), Cope's gray treefrog (*Hyla chrysoscelis*), spotted turtle (*Clemmys guttata*), queen snake (*Regina septemvittata*), western ribbonsnake (*Thamnophis proximus*), eastern ribbonsnake (*T. sauritus*), and eastern box turtle (*Terrapene carolina*). Continued field work to document presence, distribution and status of these species is needed. Some may occur in Kankakee County based on their occurrence in suitable habitats in adjacent Iroquois and Will Counties in Illinois, or in Lake, Newton, Jasper and Pulaski Counties in Indiana. Brodman et al. (2002) provide the most recent study of sand areas in northwest Indiana near the Pembroke region in eastern Kankakee County (Jasper–Pulaski and Willow Slough Fish and Wildlife Areas). Willow Slough is only 4.5 mi southeast and Jasper–Pulaski 30.5 mi east-northeast of the core sand area remnants in Pembroke Township.

There was greater similarity between Willow Slough and Pembroke Township in characteristic sand area species (Mauger, 2002; Brodman et al., 2002), with only *Thamnophis proximus* apparently absent from Pembroke Township. *Thamnophis proximus* may occur in low population density in Pembroke Township given its proximity to Willow Slough. *Notophthalmus viridescens, Ambystoma laterale*, *Siren intermedia* and *Thamnophis sauritus* occur at Jasper–Pulaski but have not been found at Willow Slough, so their occurrence in Pembroke is considered unlikely.

Ambystoma laterale occurs in northwestern Indiana (Minton, 2001) and has been found at LaSalle Fish and Wildlife Area (Brodman et al., 2002) along the Kankakee River east of the Illinois–Indiana state line. Its occurrence along the Kankakee River in eastern Kankakee County east of Momence would seem possible. Based on regional patterns in distribution, we suggest that *A. texanum* is probably restricted to the Kankakee River floodplain in the northwestern portion of the county, while *A. laterale*, if present, would be restricted to similar areas along the river in the eastern part of the county. *Ambystoma tigrinum* is one of Illinois' most common and abundant salamanders, and will probably be documented in the future with more widespread surveys during the March/April breeding season.

A mudpuppy (*Necturus maculosus*), was caught by the senior author in the early 1970s while fishing in the Kankakee River just west of the Illinois–Indiana state line, but the specimen was not saved. It is probable that *N. maculosus* still occurs there and a concerted effort should be made to survey the river for its presence.

Hyla chrysoscelis is also known only from Jasper–Pulaski Fish and Wildlife Area in northwestern Indiana (Brodman et al., 2002). Our surveys found only *H. versicolor* in Kankakee County and extreme northeast corner of Iroquois County.

Emydoidea blandingii, *Clemmys guttata* and *Terrapene carolina* are known from northwestern Indiana (Minton, 2001, Brodman et al., 2002), but the heavily altered and ditched condition of the landscape in Pembroke Township makes it unlikely that *E. blandingii* or *C. guttata* could sustain viable populations as compared to Willow Slough, which features more and larger wetland complexes. *Emydoidea blandingii* may inhabit some of the larger ditch systems in the Pembroke region that were not surveyed by us. Extensive largely unexplored backwater swamps along the Kankakee River in eastern Kankakee County provide potential habitat for both species. Although *Terrapene carolina* was not found, it was known to occur at Willow Slough (Brodman et al., 2002) and may occur in eastern Kankakee County in low densities.

Regina septemvittata is known from along the Kankakee River in southwestern Will County. *Regina septemvittata* would also be anticipated in Kankakee County along the Kankakee River, especially in areas featuring exposed bedrock.

Conclusion

More field work is needed to confirm the presence of species not found by us and not documented historically from Kankakee County: *Ambystoma laterale*, *A. tigrinum, Necturus maculosus, Notophthalmus viridescens, Siren intermedia, Hyla chrysoscelis, Clemmys guttata, Terrapene carolina, Regina septemvittata, Thamnophis proximus* and *T. sauritus*. There are also unexplored areas within and along the Kankakee and Iroquois Rivers. We recommend greater effort be focused on these two river systems, as well as additional surveys that would include more townships in the central and northern areas of the county. This would increase our knowledge of the status and distribution of the herpetofauna, particularly aquatic turtles and salamanders.

Acknowledgments

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Morphology of Riparian Tadpoles: *Euphlyctis cyanophlyctis* (Schneider, 1799)

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Abstract

The external morphology of the *Euphlyctis cyanophlyctis* tadpole is described, with notes on its feeding ecology.

Introduction

The southeast Asian skittering frog, *Euphlyctis cyanophlyctis*, (Figure 1) is the resident frog most frequently encountered in and around water bodies throughout its vast range from south-east Asia to Arabia (Khan, 1968, 1980; Khan and Tasnim, 1987). Its unique habit of skittering across the water surface has been fascinating both amphibiologists and casual observers since the 14th century, as it is recorded in the memoirs of the great Mogul Emperor Zaheer-ud-Din Muhammad Babar (1483–1530). It is a thoroughly aquatic, shore-dwelling frog that migrates from one drying pond to another during drought (McCann, 1932; Khan, 1979, 1997, Khan and Tasnim, 1987). Its characteristic call "Chhk, chhkh, chhkkh, chhkkh" from drying wetlands heralds the arrival of summer in Punjab, while

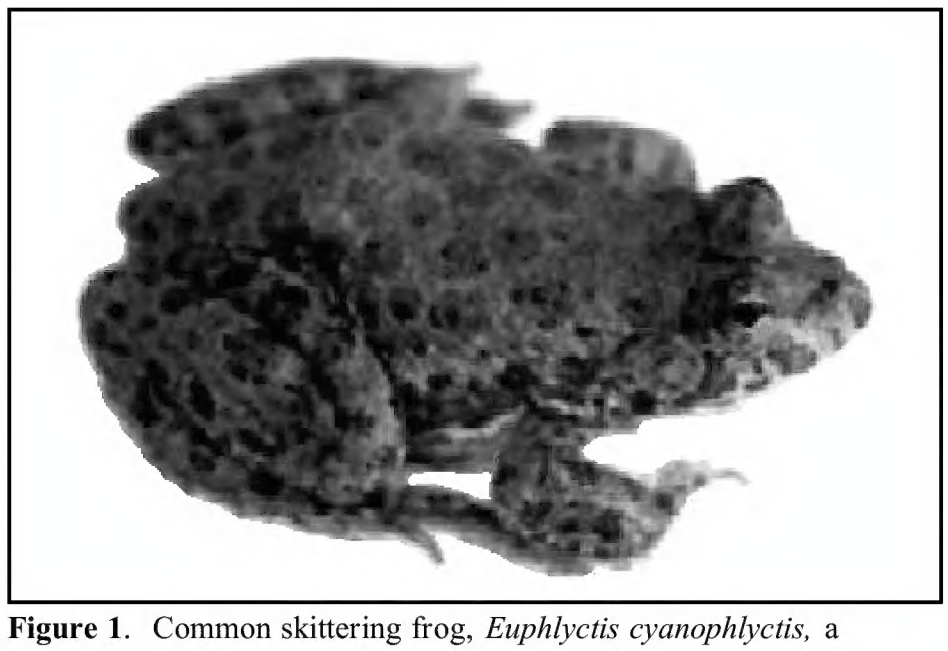

Figure 1. Common skittering frog, *Euphlyctis cyanophlyctis,* a female.

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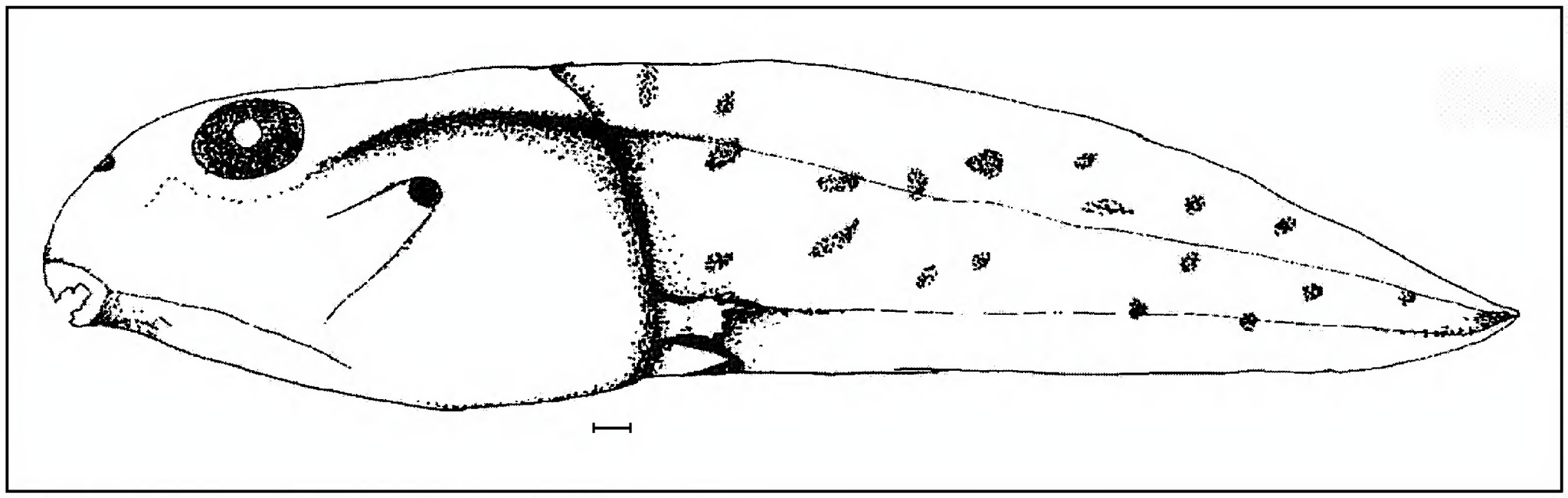

Figure 2. *Euphlyctis cyanophlyctis* tadpole at Stage 35 (scale bar = 1 mm).

its cessation announces onset of winter. The male calls while afloat in water. Axillary amplexus results in small batches of floating fertilized eggs; these soon sink and adhere to submerged vegetation, developing into tadpoles within 3–4 days (Daniel, 1975; Mohanty-Hejmadi and Dutta, 1979; Khan, 1982). Females are known to pair with several males, one after another, laying eggs with each partner (Khan, 1991).

The present paper describes the external morphology of the *Euphlyctis cyanophlyctis* tadpole, with notes on its feeding habits and ecology in circum-Indus Pakistan.

Materials and Methods

Typically *E. cyanophlyctis* is a tadpole of shallow permanent or semipermanent ponds and puddles, encountered before the monsoons (March–April) when sympatric species have not yet started breeding, and after the monsoons (late August–early October), when they have ceased breeding (Khan and Malik, 1987). The tadpoles are benthic, and tend to move slowly about the pond floor. They are best collected by dredging along the pond bottom with a hand-net. Tadpoles are fixed in Bouin's Fluid and stored in a 1:1 dilution of this substance with water.

Body length of the tadpole was measured from tip of the snout to the posterior end of the belly; tail length from the posterior end of the belly to the tail tip.

For this study tadpoles were collected during 1986–1987 from different localities along the northwestern border of the city of Rabwah. Tadpoles from Ghakkhar, District Gujranwala, collected during 1967, and Manshera and Datta, District Manshera (Khan, 1979) were used for comparison.

Description

The *E. cyanophlyctis* tadpole (Figure 2) is large, with a broad, bulky ellipsoidal belly and a relatively short muscular tail, one-and-a-half times to twice the length of the body. The body is broadest through the posterior half; the venter is flat. The tail has a gradual taper; its pointed tip is slightly turned up. The tail muscle is broadest at its base. The fins are thick, rather narrow, and do not extend to the body dorsum. The dorsal fin is broad at midtail; the ventral is narrower, of uniform width, running parallel to the tail ventrum.

The large, dorsolateral eyes have distinct pupils and a dark iris, and are nearer to snout than to the posterior end of the body. The full eye is not visible from above. The nares are small, anterolateral, and a little closer to the eyes than to the snout. The round spiracle opening is located on the left side at midbody, nearer to the posterior end of body than to the snout. The long spiracle-tube is fused to the body wall at an angle of

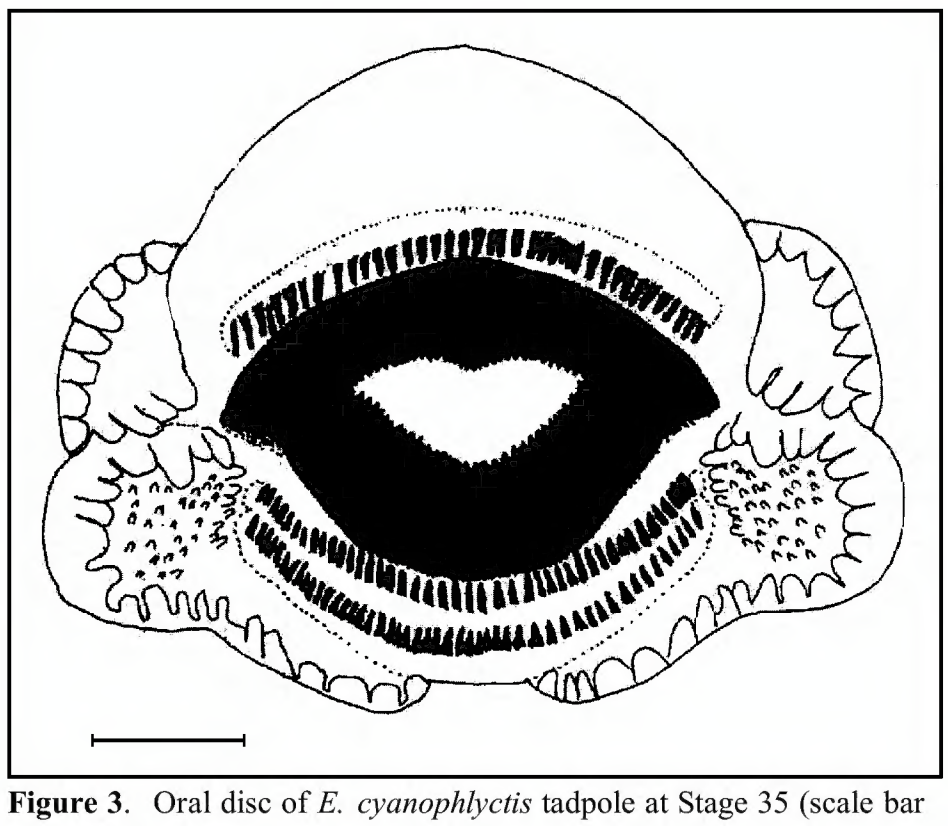

Figure 3. Oral disc of *E. cyanophlyctis* tadpole at Stage 35 (scale bar = 1 mm).

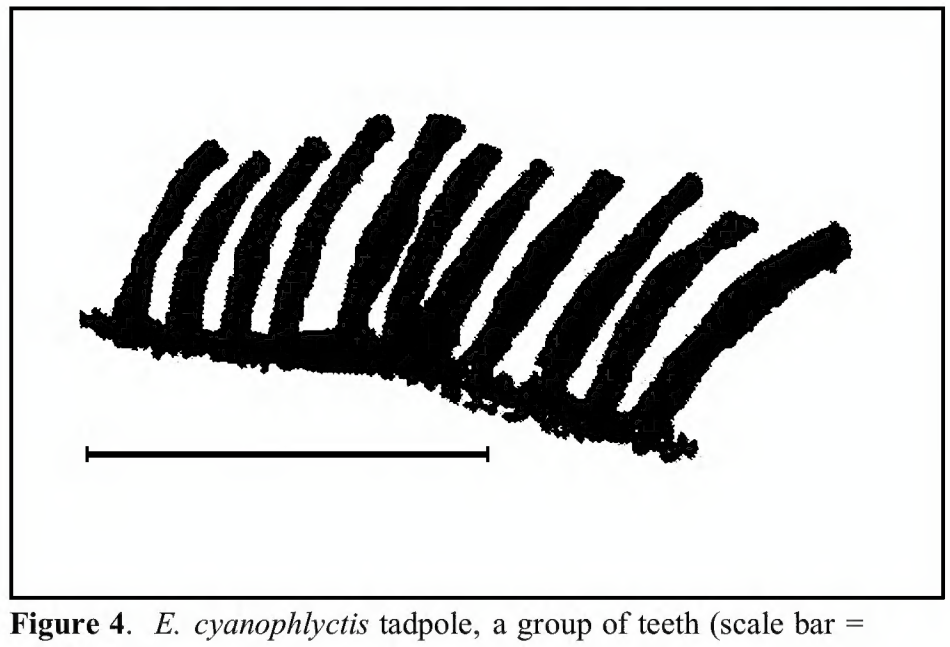

Figure 4. *E. cyanophlyctis* tadpole, a group of teeth (scale bar = 0.25 mm).

30° to its longitudinal axis. The cloacal tube is wide and depressed so that its dextral or sinistral position remains unclear. The well developed oral disc is anteroventral in position.

Oral disc: The oral disc (Figure 3) is a prominent feature of the ventral profile of the body. It is roundish, slightly broader than long, with broad anterior and narrower posterior labia. The anterior labium is indistinct, with a single continuous row of keratinized, dark brown, elongated teeth extending along its outer border. The cuplike palps on each side of the oral disc are beset with thick papillae. The post-oral labium features a pair of continuous tooth rows, and a pair of broad papillated palpal cups, which extend along the labium, narrowly interrupted mesially. The post-oral palps enclose a large papillated recess.

The dental formula of the tadpole is 1/2. The teeth are peculiar, elongated, curved, four-sided, blunt keratinized structures, embedded in the labial tissue, varying from 0.13 to 0.34 mm in size (Figure 4).

A dark brown beak is a prominent part of the oral disc. Its broadly arched preoral half is a dark brown keratinized plate, with a sharp finely serrated cutting edge. It is mesially produced in a serrated low tooth. The posterior half of the beak is broad, serrated, V-shaped. The labial palpal-cups lie on the side of the beak.

Khan (1991) noted confusion in the literature regarding morphology of the oral disc of the *E. cyanophlyctis* tadpole. McCann (1932) labels a typical *Hoplobatrachus tigerinus* tadpole as *E. cyanophlyctis* (Figures 1A, 1B; while in Figure 1C the illustrated oral disc is neither of the two species; however, the shape of the beak and palatine plate is typical of the *H. tigerinus* tadpole). Daniel (1975), who largely relied on McCaan's work, inherited its misleading information concerning the tooth row on the preoral labium—it is shown widely interrupted mesially. Altig and Johnston (1968) quoted Kirtisinghe (1957) for the dental formula 1/2(2) for an *E. cyanophlyctis* tadpole from Sri Lanka.

Measurements: Body length 17.2–18.4 mm; tail length 22.98–23.8 mm; total length 40.18–42.2 mm; greatest breadth of the body 9.0–9.3 mm; greatest depth of body 29.2–31.6 mm; interorbital space 2.98–3.1 mm; internarial space 1.99–2.3 mm; tail muscle height at base 4.4–4.9 mm; greatest breadth of the dorsal fin 2.8–3.2 mm and of ventral fin 1.6–1.8 mm.

Ecological correlates

The benthic, thigmotactic tadpole of *E. cyanophlyctis* has been collected from a variety of habitats. However, it prefers shallow ponds with ample vegetation and an accumulation at the bottom of decaying plant and animal matter, rich in bacteria, infusoria etc. The tadpole avoids strong currents by retiring to the ephemeral pools and puddles along the course of water channels. Its oropharyngeal morphology combines characteristics of pond- and stream-adapted tadpoles (Khan, 1991; Khan and Mufti, 1995). The tadpole has a well developed respiratory system from the beginning of larval stage, so that it is able to stay for longer times in oxygen deficient benthic environs in deep pool habitat. To take air the tadpole rises periodically to the surface of water.

The tadpole is solitary; it mostly remains lolling in deep water among the roots of vegetation, a site rich in humus. Occasionally it resorts to herbivory and carnivory by nibbling at vegetation and carcasses of drowned animals. Tadpoles kept in an aquarium demonstrate larvivorus habits by devouring each other and their sympatrics. However, larvivory appears to be rarer in nature as the bulky *E. cyanophlyctis* tadpole is seldom successful in chasing down its prey (Khan and Mufti, 1995). Its peculiar, long, blunt teeth are used for humus gathering; the lateral cuplike labial palps help with the intake process; the broad, serrated beak cuts chunks from the humus. The detritus-packed long intestine is indicative of the heavy load on its digestive system to process large amounts of humus to meet dietary needs.

E. cyanophlyctis tadpole remains solitary throughout its larval life; however when tadpoles are concentrated in a drying pond, they attack each other aggressively, resorting to larvivory, a habit probably developed to avoid sharing potential grazing sites with sympatrics. The protein-rich diet, salty water and high temperature hasten the metamorphic process in a fast-drying pond (Khan, 1991).

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A New Geographical Record for the Introduced House Gecko, *Hemidactylus frenatus*, at Cabo San Lucas, Baja California Sur, Mexico, with Notes on Other Species Observed

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Herein I report an observation of *Hemidactylus frenatus* at a hotel restaurant in Cabo San Lucas, Baja California Sur (BCS), Mexico. Available literature specifies that this species has not yet been reported from this site in the southern Cape Region of Baja California (Stebbins, 1985; McPeak 2000; Grismer, 2002). Stebbins (1985) does not recognize the species as present in Baja California. McPeak (2000) provides verification of a record for *H. frenatus* at La Paz, BCS, confirming Reynoso (1990). Grismer (2002) reports that *H. frenatus* is common in La Paz, and that "there have been unconfirmed reports of its occurrence farther south in the city of San Jose del Cabo (see map 4.22)." Grismer (2002) further reports that the species has been seen "on walls at night beneath lights in the city of Lorento" and also includes a dot on Map 4.22 at Boca de la Sierra.

I here report on a fifth known locality for the introduced *Hemidactylus frenatus* in the Cape Region. I have not been able to read Grismer (1994) and his earlier works; however, I have read Van Denburgh (1922), Welsh (1988), Ditmars (1936), and Smith (1967), and all with an interest in the Lower Californian herpetological fauna (to which Ditmars refers to very heavily, for examples in Chapters III, V, VI, VII, VIII, and XV, etc.); and apparently the Reynoso (1990) *H. frenatus* record at La Paz, was the first for Baja California. I have not had access to Dickerson (1919) or Schmidt (1922).

From 26 December 2000 to 4 January 2001 I was a guest at the Hotel Bahia in Cabo San Lucas, BCS, Mexico. During that time I repeatedly visited the hotel restaurant during morning and evening hours. Being interested in herpetology, I frequently talked with hotel employees about the possibilities of observing any reptiles, introduced or otherwise, that might be in the vicinity of the hotel. On at least three occasions I explored the open air hallways and corridors of the first and second floors of the hotel and the outdoor pool, garden and laundry areas with at least three of the employees that I had shown plates of geckos from Stebbins (1985) and McPeak (2000).

One of these gentlemen, a hotel security guard, led me to multiple areas at which he had apparently observed such animals. Another gentleman, also took me into an abandoned luggage storage area of the hotel in which, he claimed, he had observed geckos actively and successfully foraging for insects (cockroaches, was the translation I came up with although I saw no cockroaches at any time during my stay at the Hotel Bahia). Often, during early and late evening hours (after dark) I would peruse the gardens, houseplants, walls and lighted walkways around the pool, spa and outdoor bar, and the less-well traveled hallways of the hotel with my headlamp in search of geckos. At none of these times did I observe any species of gecko, native, or otherwise introduced, reptile.

My security guard amigo once showed me a cluttered outdoor fenced courtyard adjacent to the hotel on its east side that, he claimed, lizards were often seen basking in. I spent about 30 minutes during each of three days observing this area from a second story open balcony with binoculars during daylight hours. These efforts were for naught.

Then, on about 3 January 2001, while eating an evening meal in the hotel's somewhat dimly lit restaurant, I observed a quickly darting gecko foraging on a plaster vertical wall just over the window that opened between the kitchen's grill and the dining area. The gecko unexpectedly popped from behind a large painting toward the bamboo-lined ceiling of the indoor bar area. I quickly rose from my table and proceeded to watch, probably to the horror of the hotel employees and the other diners, a single adult house gecko (*Hemidactylus frenatus*) forage for several minutes near the bamboo facade over the bar. The specimen appeared exactly as in the plate in McPeak

Table 1. Herpetological fauna observed by the author in the Cape Region of Baja California Sur, from 26 December 2000 to 4 January 2001. One specimen was observed for each taxon listed, except for the two captive iguanas.

Taxon	Age class	Location
Cnemidophorus sp. (unidentified whiptail lizard)	Subadult	Under cardboard litter at third pull-out along highway to Todos San Lucas from Cabo San Lucas
Sceloporus licki (Cape spiny lizard)	Subadult	Under rock at first pull-out along highway to Todos San Lucas from Cabo San Lucas
Urosaurus nigricaudus (Black-tailed brush lizard)	Adult	In a low shrub at second pull-out along highway to Todos San Lucas from Cabo San Lucas
Iguana iguana (Green iguana)	Adult	Two captive animals, in the hands of a souvenir photo peddler along the marina boardwalk in Cabo San Lucas
Hemidactylus frenatus (House gecko)	Adult	On wall at Hotel Bahia, Cabo San Lucas
Crotalus sp. (Unidentified rattlesnake skin)	Adult	Among shrub stalks at an arroyo just south of La Paz

(2000: p. 31), and was ca. 7–8 cm in total length. No distinct raised tubercles were evident on the dorsum of the specimen observed, and it was impossible to collect a specimen.

McPeak (2000: p. 31) reports that this species has been introduced to La Paz, BCS, and presents a voucher photograph of a specimen from "around lights at the Hotel Pasada de Englebert, La Paz . . . " from 1 November 1997. Stebbins (1985) claims to treat Baja California in full, and yet *Hemidactylus frenatus* is not included in his volume. Schmidt (1953: pp. 236-238) lists *Hemidactylus turcicus* as a species "introduced in the West Indies, and in Key West and Miami area in Florida" in his treatment of introduced forms to North America as a whole, but does not list *H. frenatus* as of then being introduced to that continent.

I possess no voucher photograph or specimen. I believe that further work in the Cabo San Lucas area will reveal that *Hemidactylus frenatus* has indeed been introduced to the Cape Region of Lower California. The drive to Cabo from La Paz is about two hours if you don't stop along the western highway through the quick patch desert and beach zone. I searched for the sea turtle park along this drive the entire time and bought maps and asked a lot of people about it and never found the supposed sea turtle farm between Cabo and Todos, BCS.

Additional Observations

I made three boat trips during my stay in Cabo San Lucas in order to possibly observe any sea turtles, whales, sea snakes, and/or other marine wildlife: 1) by 6-person Zodiac rubber raft equipped with two 45-horsepower outboard marine craft engines and six observers which lasted ca. 2 hours (0900–1100 hr) and proceeded ca. 3 nautical miles beyond the Cabo at San Lucas itself, well past the famed arch into waters averaging ca. 1000 m depth offshore; 2) a trip in a refurbished late 1800s sailing frigate (ca. 40 m along keel) lasting 2 hours at sunset from ca. 1730 to 1930 hr, with 40 observers, which sailed further to the south, well past the arches and to ca. 5 nautical miles past them; and finally, 3) on a clear-bottomed tourist observation vessel equipped with plexi-glass windows inserted along the vessel's keel, which measured ca. 10 meters bow to stern, and was powered with one 45-horsepower outboard motor, and sailed from about 1300 to 1400 hrs across the main bay to the caves just north of the arches, around the arches and the bird colony isle just south of the arches, and then back to the cave beach and back to the main hotel beach in about another hour.

I observed only one humpback whale spout, no turtles and no sea snakes during these excursions. However, I did observe: dolphin, blue-footed booby, California sea lion, terns, petrels and other sea birds. One of two guides aboard the Zodiac inflatable told me that whales are more readily seen in February.

During the clear-bottomed boat trip I observed a myriad of colorful marine fishes, but again, no sea snakes. The one possible sea snake I had hoped to observe was *Pelamis platurus*, the yellow-bellied sea snake [Stebbins (1985); see also Minton et al. (1968) and Ditmars (1933: p. 200 and Plate 49, under the name *Pelamydrus platurus*)]. This species is known to range as far north as San Diego and Orange Counties, in California State and across the Pacific and Indian oceans in warm tropical and semi-tropical waters (Brown, 1997; Stebbins, 1985). Especially see this species in Minton et al. (1968); and Plate 32, p. 114, of Brown (1997) for a clear and colorful photograph; also the plate on p. 85 in McPeak (2000), courtesy of Dallas Zoo, photo by J. H. Tashjian.

McPeak (2000) gives the yellow-bellied sea snake's distribution (in the BCS area) as the entire Sea of Cortez (referring to this body of water and the snake's range as the "Gulf of California and west coast of Baja California" on page 85). Apparently, McPeak and I had similar negative observations, as he includes a photo from Costa Rica, not from the Baja

Peninsula, as an example for this taxon (ibid.).

Hoping to observe *Pelamis platurus*, I attempted three swimming/snorkeling excursions while at Cabo San Lucas. During my first excursion into the Bahia de Cabo San Lucas ca. 28 December 2000, I dived into shallow light-surf on the main beach during daylight hours. It was a 70-plus°F day with light clouds and mostly sunny. The substrate was clean, tan-colored, course sand.

My second and third ventures into marine habitat were two 1-hour snorkeling excursions into San Maria Cove, just north of Cabo San Lucas. No sea snakes or sea turtles were seen during these two snorkeling sessions on 3 January 2001. Substrate in the area snorkeled varied from clean, tan sand to shallow rocky outcrops and corals. The weather during the entire trip was similarly mild (70–80°F daily), with only a few minutes of light fog one day.

Acknowledgments

I thank Ms. Denise L. Dodd for financing the trip and assisting me throughout it. I thank the staff of the Condo Bahia Hotel, Cabo San Lucas, for serving me with the greatest of hospitality during my stay. I thank Dr. H. H. Welsh, Jr. for encouraging my studies of the herpetofauna of Baja California. Mike Dloogatch provided literature that significantly improved the manuscript.

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Bull. Chicago Herp. Soc. 38(5):101-103, 2003

Book Review: *Life Histories of the Frogs of the Okefinokee Swamp, Georgia. North American Salientia (Anura) No. 2* by Albert Hazen Wright (first published 1932; new foreword and afterword by J. W. Gibbons). 2002. Cornell University Press, Ithaca and London xxi + 509 pp. Hardcover. ISBN: 0-8014-4046-7. $49.95*

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Two weeks passed between when I found I would receive a review copy of this reissued version of a classic anuran text, and the date the copy was received. I was excited that I would soon have a copy of this book, as used copies from the original printing are fairly rare. While waiting for the review copy, there was ample time to start thinking about what I might say about this book. I was already very familiar with the original printing, so the review promised to be fairly easy. While in graduate school, I consulted library copies numerous times for my studies of several species of *Rana* and *Hyla*. Indeed, it may be fair to speculate that most North American anuran biologists have consulted Wright's " . . . Frogs of the Okefinokee Swamp . . . " at some point during their studies. Upon opening the book, I noticed that Dr. Whitfield Gibbons, of the University of Georgia's Savanna River Ecology Lab, had written both Foreword and Afterword statements. Within just a few minutes of reading Dr. Gibbons' foreword, it became abundantly clear I had a dilemma of sorts because he eloquently covered many of the points I anticipated making in this review. Going on with the review as I originally envisioned it would largely appear to plagiarize Dr. Gibbons' coverage.

Wright amassed data presented in this book during Cornell University expeditions to the Okefenokee between the years 1909 and 1922. While this might seem rather old data, perhaps the greatest value of the book is the gap it continues to help fill, even though 70 years have lapsed since it was first published. As the title indicates, this is the second text Wright published on the life histories of North American anurans. Simply put, " . . . Frogs of the Okefinokee Swamp . . . " is arguably the most complete of a quintet of contemporary "must-have" classic books on North American anurans. The others are Wright's earlier work on life history of frogs of Ithaca, New York (Wright, 1914), a later volume, *Handbook of Frogs and Toads* (Wright and Wright, 1949), *The Frog Book* (Dickerson, 1969 [1906]), and *The Amphibians of Ohio: Part 1, The Frogs and Toads* (Walker, 1946). Together these serve as the continent's most extensive bound volumes on the topic. While studies of anuran biology and natural history have continued in the second half of the century, most of the results have been published piecemeal in the huge volume of literature now appearing in scientific journals.

The new release of " . . . Frogs of the Okefinokee Swamp . . . " includes Gibbons' aforementioned Foreword (pp. xvii-xx) and Afterword (pp. 479-486) sections, but is otherwise a facsimile of the original issue. The text of the original work is organized into the following major sections:

Introduction
Acknowledgments
Previous explorations
Subsequent explorations
The Okefinokee region
Plant habitats
A catalogue of the species of Salientia of the Okefinokee region (1922)
Hypothetical species
General discussion of the Okefinokee Salientia [the primary role of this section was to describe methods Wright used to collect data that forms the framework of the sections/subsections organized under the "Life histories"/species accounts]. Topics under this section include:
- Range
- Coloration of spirit specimens
- Measurements
- First appearance and autumnal disappearance
- Breeding sizes
- Voice
- Mating
- Coloration from life
- Structural differences
- Customary amplexation
- Cross embraces
- Departures from customary amplexation and their significance
- Ovulation
- The eggs
- Synopsis of the eggs of the Okefinokee Salientia
- Egg-laying process
- Hatching period
- Larval period
- Tadpoles
- Synopsis of the tadpoles of the Okefinokee region
- Transformation period
- Transformation size
- Rate of growth
- Food
- Enemies
- Affinities
- Hypotheses
- Summary of affinities
- Suggestions for . . . naturalists . . . in the southeastern U.S.
- General Topics
- Special problems for each species

Life history [This section comprises 22 species accounts. In some cases common or scientific names have changed (Table 1)].

The text is accompanied by 45 full-page plates inserted together as a block in the first half of the book. Most of the plates consist of photographs of the species, including images of individual adults, calling males, amplexed pairs, egg masses in situ, eggs ex situ, tadpoles, metamorphosing frogs, and

Table 1. List of common and scientific names of species covered in Wright (1932), with current common and scientific names as listed by the Committee on Standard English and Scientific Names (2000).

Wright's Usage	**Committee on Standard English and Scientific Names (2000) Usage**
Spade-foot *Scaphiopus holbrookii*	Eastern Spadefoot *Scaphiopus holbrookii*
Oak toad *Bufo quercicus*	Oak Toad *Bufo quercicus*
Southern toad *Bufo terrestris*	Southern Toad *Bufo terrestris*
Cricket frog *Acris gryllus*	Southern Cricket Frog *Acris gryllus*
Black chorus frog *Pseudacris nigrita*	Southern Chorus Frog *Pseudacris nigrita*
Smooth chorus frog *Pseudacris occidentalis*	None[1]
Little chorus frog *Pseudacris ocularis*	Little Grass Frog *Pseudacris ocularis*
Ornate chorus frog *Pseudacris ornata*[2]	Ornate Chorus Frog *Pseudacris ornata*
Anderson tree-frog *Hyla andersonii*	Pine Barrens Treefrog *Hyla andersonii*
Green tree-frog *Hyla cinerea*	Green Treefrog *Hyla cinerea*
Pine wood's tree-frog *Hyla femoralis*	Pine Woods Treefrog *Hyla femoralis*
Florida tree-frog *Hyla gratiosa*	Barking Treefrog *Hyla gratiosa*
Southern tree-frog *Hyla squirella*	Squirrel Treefrog *Hyla squirella*
Common tree-toad *Hyla versicolor*	Gray Treefrog complex: Cope's Gray Treefrog *Hyla chrysoscelis* Gray Treefrog *Hyla versicolor*
Gopher frog *Rana aesopus*	Gopher frog *Rana capito*
Green frog *Rana clamitans*	Green Frog *Rana clamitans*
Southern bull frog *Rana grylio*	Pig Frog *Rana grylio*
Heckscher's frog *Rana heckscheri*	River Frog *Rana heckscheri*
Mink frog *Rana septentrionalis*[3]	Mink Frog *Rana septentrionalis*
Southern leopard frog *Rana sphenocephala*	Southern Leopard Frog *Rana sphenocephala*
Carpenter frog *Rana virgatipes*	Carpenter Frog *Rana virgatipes*
Narrow-mouthed frog *Gastrophryne carolinensis*	Eastern Narrow-mouthed Toad *Gastrophryne carolinensis*

1. Wright's account of this taxon presents evidence that suggests that it is likely based on misidentified specimens of *P. ornata*, or that the *P. ornata* complex needed more study. The account for *P. occidentalis* also mentions specimens from Texas, and Wright's Plate I depicts a "*P. ornata*" from Texas. The only representative now known to occur in Texas is Strecker's chorus frog (*Pseudacris streckeri*).

2. Wright did not find this species in the Okefenokee Swamp, and the species account is brief. He mentions finding "*P. ornata*" (=*P. streckeri*) in Texas.

3. Though this northern species does not occur in the Okefenokee Swamp, Wright includes an account for comparison with *R. virgatipes*.

habitat. With few exceptions, the black and white photographs are of exceptional quality given the time they were taken, and the camera equipment available.

The amount of printed text in this book is large due in part to two factors. First, Wright's writing follows the prevailing style of his era, and at times the text is wordy. Also, some sections (for example "Measurements") in the species accounts are little more than strings of raw anatomical measurements taken from individuals in Wright's samples. Such strings of raw quantified data were certainly not intended to hold a reader's attention. However, although these enormous bodies of data are old, they may still be very useful to biologists studying any of the species covered by this text. Indeed, if an author were to attempt to publish an original book like this now, it is doubtful that publishers would allow these data to be presented, even as an appendix. Sadly, in today's more tightly edited publishing environment, comprehensive books or journal articles on amphibian life histories are rarely published.

In his Afterword comments, Whitfield Gibbons points out (somewhat amazingly) that only one thorough study has been conducted on habits or life history of an amphibian species within the Okefenokee Swamp since the initial publication of Wright's book. He then also summarizes the importance of studies like Wright's to our understanding of "amphibian decline," a reminder to readers that the world is now in its second decade of recognizing this phenomenon. Perhaps the Wright's book will serve as an important original baseline for more studies to come.

Beyond the many tangible qualities of this book summarized above, the new release is assembled with quality binding

and paper, and is reasonably priced. Because original copies from the 1932 printing are difficult to find on used book lists, anyone interested in North American amphibians should take advantage of the new availability of this classic.

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Bull. Chicago Herp. Soc. 38(5):103, 2003

Book Review: *Biology of the Vipers* edited by Gordon W. Schuett, Mats Höggren, Michael E. Douglas and Harry W. Greene

2002. 580 pp., 16 color plates. Eagle Mountain Publishing. ISBN: 0-9720154-0-X. $75.00

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In 1989, I attended my first taxon-specific symposium at the University of Texas at Arlington. Back then I could scarcely imagine a symposium on snakes alone, but a three-day symposium on pit vipers was even more beyond my comprehension. That meeting culminated in a proceedings volume, *Biology of the Pitvipers*, in 1992. Research reported in that volume, using morphometric analysis coupled with early forays into molecular systematics and controversial redefinitions of the species concept, led to changes in the generic status of many members of the genus *Bothrops* which, while eyebrow-raising then, are largely accepted today.

This long-awaited companion volume to the ground-breaking *Biology of the Pitvipers* shares many characteristics of its predecessor: it is the result of a symposium held in Sweden in 2000; it is an edited collection of 35 technical papers by 82 of the symposium's 100 attendees; it presents a diverse array of topics on viperid biology, with papers on systematics, taxonomy and phylogeography (again, new taxonomic relationships and nomenclature changes are proposed), behavior, ecology, natural history and evolution, physiology and reproductive biology, and most importantly (for me), conservation.

A noteworthy contribution is that of M. E. Douglas et al., on the phylogeography of the *Crotalus viridis* complex (western or prairie rattlesnakes). The authors propose the elevation of seven members of that group to full species status (the Arizona black rattlesnake, *Crotalus viridis cerberus* becomes *C. cerberus*; the great basin rattlesnake, *C. v. lutosus* = *C. lutosus*, etc.) Papers dealing with parental care in vipers, venom expenditure in predatory versus defensive bites, and caudal luring were well-supported, well written and exciting to read; a few others, while dry and pedantic in style, were no less original and informative.

A paper by E. Nowak et al. on the translocation of "nuisance" rattlesnakes — those removed alive from areas near human habitation — is sure to contribute more data and fuel to the ongoing debate over the effectiveness of relocation and translocation in snakes. The concept of reintroducing species to areas they once occupied (or those areas having similar habitat) is finding favor in many conservation groups and agencies, despite a paucity of data demonstrating either success or failure in controlled experiments specifically designed to test the efficacy of such a practice.

Excellent color plates feature species portraits and *in situ* photos of snakes and their habitats. Photo captions are short natural history annotations that complement the papers. The book is well constructed, although in the reviewer's copy, a misalignment of the color plates in the back of the book had the photos protrude 2.5 mm below the text body. This was only a minor flaw and in no way detracted from the extremely high quality of the plates or the overall appeal of the book.

I highly recommend this volume for anyone interested in the topic. It is sure to be widely referenced by herpetologists specializing in snakes, and its papers present concepts and research methodologies that may also prove useful to biologists in other fields.

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Bull. Chicago Herp. Soc. 38(5):104-105, 2003

HerPET-POURRI

by Ellin Beltz

Greetings from the foggy North Coast! Due to the lead time for publication, to me the war is still immediately in my mind; in a month when you read it, our minds will be in different places. Here, in Ferndale, about a dozen of our 3,000 people are in Bagdad and other exotic places. Their parents, siblings and friends wait. Even through the pundits have declared it "over," it won't be done for them until Joni comes marching home. I found that I couldn't concentrate on details in print when I sat down to write. Instead my mind went hopping from headline to headline.

"Day of the Lizards: Museum of Science stages its own creature feature." [*Miami Herald*, July 15, 2002, from Alan Rigerman]

"Party animal comes out of his shell." [*Chicago Tribune*, July 17, 2002, from Ray Boldt]

"Gator-busters find plenty to do as reptiles flourish." [*Arkansas Democrat-Gazette*, July 30, 2002, from Bill Burnett]

"Fishing, boating halted after countless tadpoles die." [South Bend, Indiana *Times*, August 27, 2002, from Jack Schoenfelder]

"Homeowner rescues stray sickly python." [*Arkansas Democrat-Gazette*, August 1, 2002, from Bill Burnett]

"Three Texans nabbed with slain gator, 7 eggs in Miller County, Arkansas" [Arkansas *Democrat-Gazette*, August 30, 2002, from Bill Burnett]

"Hissing in action: Snakes elude hunt" and "Cops arrest man wearing bone: He brought in this other bone and it was just upsetting to the customers." [*Chicago Tribune*, August 14, 2002, from Ray Boldt]

"West Nile found in alligators: Experts seek virus link in recent Florida death spurts." [*Orlando Sentinel*, November 14, 2002, from Bill Burnett]

"Hunters of rare turtle find big mess: Volunteers snag some creatures from black lagoon." [*Chicago Tribune*, October 8, 2002, from Claus Sutor] `Twas some folks muckin' about in Jackson Park lagoon, but what a great headline.

"Herbicide could be behind frog decline." [*USA Today*, October 31, 2002, from Alan Rigerman] Ya think?

"How herbicide may alter sex of frogs in wild" [*Wall Street Journal*, October 31, 2002, from Mrs. P. L. Beltz] Why is it not enough to know it does and quit making it?

"State to take a look at alligator trappers: Complaints are rising while the number of trappers and their income are falling." [*Orlando Sentinel*, November 17, 2002]

"Involuntary sex changes in Midwest." [*Chicago Tribune*, November 24, 2002, from Claus Sutor and Ray Boldt] Don't worry guys, it's about the frogs.

"Turtles face killing zone on US 27. Activist sticks neck out for turtles: Found the most deadly crossing on the continent for 10 species of the reptile." [*Orlando Sentinel*, October 23, 2002, from Bill Burnett]

"Fruity solution overcomes coqui frogs: State workers employ citric acid on Oahu and the Big island." [*Honolulu Star-Bulletin*, December 15, 2002, from Ms. G. E. Chow] We know about acid rain and declining frogs, here we learn that acid kills frogs. Could there be a link?

"Still no relief for gator trappers." [*Orlando Sentinel*, December 3, 2002, from Bill Burnett]

"Wetlands making their way back: Native species return on Downstate land that once was farmed" [*Chicago Tribune*, no date, obviously from my mother, and September 10, 2002, from Ray Boldt]

"Meat from turtle kills 3 people, poisons 91" [*Honolulu Star-Bulletin*, December 8, 2002, from Ms. G. E. Chow]

"Illegal shipments of wildlife cargo prey on airport in Alaska." [*Arkansas Democrat-Gazette*, December 4, 2002, from Bill Burnett]

"Discovery of rare poisonous snake stirs hope at dunes." [*South Bend Tribune*, December 24, 2002 from Garrett Kazmierski]

"Invasion of the Everglades: Watch where you put your feet. Giant snakes, likely abandoned pets, have a new hangout." [*Miami Herald*, December 22, 2002, from Alan Rigerman]

"Activists stewing over threat to species: Conservationists are battling culinary tradition to save Mexico's dwindling sea turtle population." [*Chicago Tribune*, December 29, 2002, from Ray Boldt]

"Turtle doctors learn on job." [*Orlando Sentinel*, December 28, 2002, from Bill Burnett] This one's not as dismal as it sounds, the sub-lead reads, " Volusia County's Marine Science Center is writing the book on the new field of turtle rehabilitation and improving treatment methods."

"Venomous and sublime: The viper tells its tale." [*New York Times*, Science Times, December 10, 2002, from Ms. G. E. Chow]

"Can turtles live forever? A quiet backwoods study opens a huge window on aging." [*Discover*, June 2002, from Eloise Mason]

"Would-be turtle rescuer charged: Lawyer broke law, state says." [January 19, 2003, from Alan Rigerman]

"Amphibian monitoring program hops to action." [*South Bend Tribune*, January 31, 2003, from Garrett Kazmierski]

"Frogs hop through Calaveras County loophole" [*Honolulu Advertiser*, February 7, 2003, from Ms. G. E. Chow]

"Calaveras frog fest gains new leap on life" [*Chicago Tribune*, February 7, 2003, from Ray Boldt]

"Endangered olive ridley turtle lays eggs at Hilo Bay: Offi-

cials are asking the public to not disturb the rare nest, which has 124 eggs" [*Honolulu Star-Bulletin*, October 12, 2002, from Ms. G. E. Chow]

"Humane Society raids home: Alligator, pythons, pit bulls removed" [*South Bend Tribune*, February 15, 2003, from Garrett Kazmierski]

"Frog invasion resembles film: Thousands of young amphibians invaded an animal control agency in the Panhandle, where the eco-horror movie ` Frogs' was filmed 30 years ago" [*Orlando Sentinel*, October 17, 2002, from Bill Burnett]

"Croc around the clock: Joe Wasilewski's undying fascination" [*Miami Herald*, July 17, 2002, from Alan Rigerman]

"Snake confiscated after flight in pocket." [*Honolulu Advertiser*, February 6, 2003, from Ms. G. E. Chow]

"The beastly behavior of us humans." [*Gainesville Sun*, June 9, 2002, from Ken Dodd]

"Experts hatch plan for threatened turtles [in McHenry County, Illinois]" [*Chicago Tribune*, January 30, 2003, from Mrs. P. L. Beltz and Ray Boldt]

"Sharing a pen, Monroe County, Florida, jailbirds tend to the animals at adjacent petting zoo for kids" [*MetroMiami*, August 4, 2002, from Alan Rigerman]

"Officials on Maui discover more banned chameleons." [*Honolulu Advertiser*, January 31, 2002, from Ms. G. E. Chow]

"St. Croix man charged with swiping turtle eggs from West End beach" [*The Avis*, September 25, 2002, from Ken Dodd]

"Elderly woman loses forearm in alligator attack near condo." [*Miami Herald*, February 25, 2003, from Alan Rigerman]
"Arm retrieved after gator attacks woman." [*Chicago Tribune*, February 25, 2003, from Ray Boldt]

"In Bahamas, some indulge taste for dwindling iguana" [*Miami Herald*, July 7, 2002, from Alan Rigerman]

"Military targets environmental law" [*Chicago Tribune*, March 13, 2003, from Ray Boldt]

"Bad driver has best intentions, but alligator still ends up dead" [*Honolulu Star-Bulletin*, February 26, 2003, from Ms. G. E. Chow]

"Search continues for Maui snake" [*Honolulu Advertiser*, February 21, 2003, from Ms. G. E. Chow]

"It's pond sweet pond for endangered turtles" [*News Tribune*, July 19, 2002, from Alan Rigerman]

"Snake Day draws faithful—and fearful: Museum event dispels myths" [*Miami Herald*, August 5, 2002, from Alan Rigerman]

"No charges after live pups fed to snake: Animal control worker fired" [*Honolulu Advertiser*, November 25, 2002, from Ms. G. E. Chow.]

"Gator trappers are enduring tough times" [*Orlando Sentinel*, December 2, 2002 from Alan Rigerman]

"Seal from milk jug made sea turtle ill: People should be more careful with their trash." [*Orlando Sentinel*, July 24, 2002, from Alan Rigerman]

"Fertile turtle astounds local researchers: Laid three, maybe four times this year on Maui" [*Honolulu Star-Bulletin*, 2002, from Ms. G. E. Chow]

"Thumb missing, circus dream intact: He works with ` T-rex' the same alligator that bit him in February" [*Chicago Tribune*, Backstage, November 8, 2002, from Ray Boldt]

"Lovelorn crocodile returns to sea" [*Miami Herald*, March 1, 2003, from Alan Rigerman]

"Eradicators concede Big Island to frogs" [*Honolulu Advertiser*, February 28, 2003, from Ms. G. E. Chow]

"Tracked turtle tells tale" [*Honolulu Advertiser*, February 21, 2003, from Ms. G. E. Chow]

"State confiscates snake, lizard" [*Honolulu Advertiser*, March 28, 2003, from Ms. G. E. Chow]

"Long lines of fishing boats add to leatherback turtles' woes" [*San Francisco Chronicle*, April 29, 2003]

"Mortal coils: Pythons thrice the size of the largest indigenous snakes are making room for themselves in the Everglades" [*Street:* Miami, March 21– 27, 2003, from Alan Rigerman]

"Gator-toting driver panics over ` felony in the back seat'" [*Orlando Sentinel*, February 25, 2003, from Bill Burnett]

"Officials baffled by alligator sprawl [in Arkansas park]" [*Arkansas Democrat-Gazette*, February 7, 2003, from Bill Burnett]

"Virginia turtles return to sea in Keys" [Leesburg, Florida, *Daily Commercial*, January 6, 2003, from Bill Burnett]

"Turtle trends cause worries" [*Orlando Sentinel*, January 7, 2003, from Bill Burnett]

"Pretty in green: Homeless iguana captures the heart of a Sherwood Animal Shelter worker" [*The Times*, North Little Rock, Arkansas, January 23, 2003, from Bill Burnett]

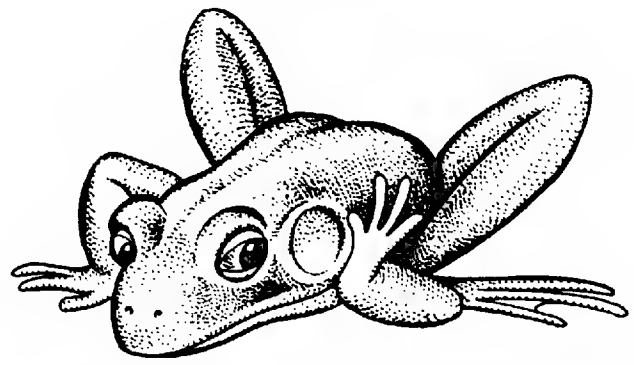
"LA man receives deadly cobra in mail" [*Times-Standard*, Eureka, California, February 26, 2003]

"Frantic uncle rescues boy from gator's death grip" [South Florida *Sun-Sentinel*, March 11, 2003, from Bill Burnett]

"Turtles may move slowly, but sulcatas grow up fast" [*Chicago Tribune*, March 11, 2003, from Ray Boldt]

Thanks to everyone who contributed these past two months, but count 'em, folks, there's not that many headlines from March, April and May. Please do send all your reptile and amphibian story clippings, cute postcards, ardent opinions and anything else you think would make good column fodder to: Ellin Beltz, P.O. Box 934, Ferndale, CA 95536-0934.

The Tympanum



Peterson Field Guide Brothers Honored by SWAN

On April 19, during its annual meeting, held this year at the University of Oklahoma, the Southwestern Association of Naturalists (SWAN) bestowed to Roger Conant and Robert C. Stebbins its highest honor, the W. Frank Blair Eminent Naturalist Award. Because Dr. Conant is best known for his Peterson Field Guide to Reptiles and Amphibians of Eastern/Central North America, and Dr. Stebbins for his Peterson Field Guide to Western Reptiles and Amphibians, I like to refer to them as the "Peterson Field Guide Brothers." I hope they don't mind. Of course, both of these senior herpetologists have many, many other publications to their credit. What is amazing to me is that their productivity continues in their golden years. For example, Dr. Stebbins, who was born March 31, 1915, just completed the third revision to his field guide. The new edition features revised taxonomy, information on conservation efforts and survival status, many more color plates by Stebbins, new color photos, and up-to-date color range maps. And Dr. Conant, born May 6, 1909, is eagerly awaiting the American Museum of Natural History's publication of his most recent paper, this one on the Mexican gartersnake, *Thamnophis eques*. This award is named for William Franklin Blair (1912-1984) who was a long-time faculty member at the University of Texas. The Blair award recognizes excellence in a lifetime of commitment to outstanding study or conservation of the flora or fauna of the Southwest. For Roger Conant's personal recollections about Dr. Blair, consult pages 451-452 of his "memoirs" [Conant, R. 1997. *A Field Guide to the Life and Times of Roger Conant.* SELVA, an imprint of Canyonlands Publishing Group, Provo, Utah]. The Southwestern Association of Naturalists was founded in May 1953 to promote the field study of plants and animals (living and fossil) in the southwestern United States, Mexico, and Central America and to aid in the scientific activities of its members. The Association holds an annual meeting and publishes *The Southwestern Naturalist.* Membership is open to all persons interested in natural history. For more information consult the SWAN website at: http://www.biosurvey.ou.edu/swan. Many colleagues of the honorees helped with the nominations by writing letters of support or providing information. For assistance with the Stebbins nomination I would especially like to thank David Wake of the University of California– Berkeley. Douglas Rossman, formerly of Louisiana State University, but now in retirement, associated with Luther College in Iowa, was very helpful in preparing Conant's nomination. Congratulations to Roger Conant and Robert Stebbins on this well-deserved recognition. And **Happy Belated Birthday** to both of them!

Raymond Novotny, Ford Nature Center – MillCreek MetroParks, 840 Old Furnace Road, Youngstown, OH 44511. rayn@millcreekmetroparks.com.

Unofficial Minutes of the CHS Board Meeting, April 18, 2003

Lori King called the meeting to order at 7:38 P.M. Board members Zoe Magierek, Jack Schoenfelder and Erik Williams were absent.

Officers' Reports

Recording Secretary: Zoe Magierek was absent. Darin Croft read the minutes from the March board meeting, and these were corrected and approved by the board. Mike Redmer volunteered to take minutes in Zoe's absence.

Treasurer: Jim Hoffman presented the March balance sheet and income statement. Income and expense from ReptileFest was discussed, but no accounting was presented since some expenses are outsanding. Jim presented for discussion a draft budget. This was the same budget presented at the February board meeting. Jim moved that the board adopt the budget as presented. Tom Anton seconded. During discussion several board members absent from the February meeting expressed concern that this was the first time they had seen the budget. Also, several new expenses (e.g., book sales at general meetings, solicited/unsolicited donations) were not included. Darin Croft suggested, and moved, that the motion on the floor be amended to adopt a budget that reflects these items. Tom Anton seconded. During discussion the board was reminded that the budget is generally intended to be advisory and flexible, and that board actions could always approve items not included now. Motion passed unanimously.

Membership Secretary: Mike Dloogatch reported that nine new members were signed up at ReptileFest. This number is lower than in past years, but Mike also noted a number of membership applications were taken, so we may still get new members from ReptileFest.

Vice-president: Linda Malawy and Lori King presented a list of upcoming speakers and programs for general meetings. June is "Show and Tell."

Sergeant-at-arms: Joan Moore reported that the resurrection of book sales at a monthly meeting (March) appears to be a success.

Standing Committees

ReptileFest: Darin reported on the highly successful event. Numbers are not yet finalized because of outstanding expenses.

However, over the two days there were about 3200 people in attendance, about $19,000 in gate income, $3,700 in fees from commercial vendors. A final report should be available at the May board meeting.

Grants: Mike Redmer reported that the grants committee had agreed to bring a request to the board from Dr. Gery Herrmann (also a grant committee member) to assist with the Illinois Reptile and Amphibian Medical Award (a scholarship awarded to veterinary medicine students through the University of Illinois). Gery has asked that CHS support this year's successful scholars by providing a complimentary CHS membership. Mike Redmer moved that CHS award complimentary one-year memberships to Ms. Kyla Kuhns and Mr. Michael Adkesson. Jenny Vollman seconded. Passed 8-0, Linda Malawy abstained. Mike Redmer suggested that the Illinois Amphibian and Reptile Medical Award was consistent with interests of CHS members. Mike Dloogatch noted that CHS had in the past supported this scholarship. Mike Redmer moved that CHS donate $100 to support the next cycle of the award. Darin Croft seconded. Passed 8-0, Jim Hoffman abstained.

Shows: Jenny Vollman, Ron Humbert, Lori King and Joan Moore all reported that planning is underway for a number of show dates in the next two months. Among these are a local nature center that asked CHS to display live native herps on May 4; Emily Oaks Nature Center April 27; Oak Forest Hospital April 23; and Plum Creek Nature Center April 26. The last two events are related to Earth-Day observance. Joan reported that the Notebaert Nature Museum asked CHS to participate in a number of upcoming weekend "Nature Days." The dates are April 19-20, May 3-4, May 31-June 1, July 12-13, and August 23-24. Each weekend has a theme specified, and animals displayed would need somehow to be appropriate to the weekend themes. Contact Lori for more information about themes, or if interested/available to help.

Monthly Raffle: Ron Humbert reported that Erik Williams has aggressively solicited donations of items for raffle, and that we now have had numerous enough high-quality items to sustain 3 months of raffles. There was discussion about limiting the number of items offered in order to streamline the time for raffle needed at general meetings. Ron will work with Bob Herman to address this issue.

Adoptions: Linda Malawy took in $155 in donations last month, and at present the adoptions program appears to be self-sustaining (donations are covering expenses incurred by adoptions chair). A number of animals are also available for adoption.

Chicago Wilderness: Tom Anton reported that the April 5 Great Herp Search was cancelled due to weather conditions. Mike Redmer reported that there are still plenty of slots available for the May 31 trip to Midewin National Tallgrass Prairie, which has a limit of 20 participants and requires advance registration.

Conservation: Carlyle/Massasauga—Lori King reported that massasauga shirts sold well at ReptileFest. The Carlyle trip was successful. There was discussion about attendance. Lori King and Mike Redmer noted that it was decided at the February meeting that due to space limitations, only the massasauga committee or members who helped efforts of the massasauga committee would be able to attend.
Utila Iguana—Lori King noted that CHS has so far raised $2005 to help with urgent acquisition of habitat on Utila.

Speakers Bureau: Mike Redmer will forward to Lori (for signature/submission) a draft query letter to initiate involvement in the Grand Victoria Foundation grant process.

Ad Hoc Committees

Illinois Dangerous Animals Act: Steve Barten was not present. He has passed to the board that there was nothing new to report, and that the state's continuing budget crisis has made it unlikely that action would be taken soon.

Trips: Bob Herman has changed the date of the Indianapolis Zoo trip from June to September.

Old Business

State Reptile/Amphibian: Mike Redmer and Ron Humbert reported that nearly 500 signatures have been gathered to date. We are still collecting signatures. A general press release describing this initiative will be made next week, with Mike and Ron listed as contacts.

Trailer Storage: The Notebaert Museum could no longer provide space for the CHS trailer after ReptileFest. It is now at Rich Crowley's house. Jenny Vollman can also temporarily store the trailer, but CHS will quickly need to find a place for permanent storage.

New Business

Liability Insurance: Lori King reported that we have been informed that the premium for our basic insurance coverage will increase by about $300. Tom Anton moved that we pay the $300 increase. Linda Malawy seconded. Passed unanimously.

Ideas and Suggestions

Darin Croft suggested that minutes be kept at general meetings. Discussion indicated that this would be the responsibility of the recording secretary. No action was taken.

Round Table

Ron Humbert pointed out that meeting attendance has increased in recent months, and suggested that all board members help maintain order, flow and professional atmosphere at general meetings. Ron also discussed selling Pilstrom reptile tongs at meetings.

The meeting was adjourned at 9:45 P.M.

Respectfully submitted by Michael Redmer for
Recording Secretary Zoe Magierek

Herpetology 2003

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

DEFINING DESERT TORTOISES

K. H. Berry et al. [2002, Chelonian Conservation and Biology 4(2):249-262] report that many populations of tortoises within the *Gopherus agassizii – G. berlandieri* complex could be designated as species, subspecies, Distinct Population Segments (DPSs), Evolutionarily Significant Units (ESUs), or Management Units (MUs). However, the appropriate designations for populations remain incompletely resolved. Ambiguities regarding the phylogenetic relationships and taxonomic status of desert tortoises impede precise and efficient legal protection, and compromise extrapolations from the studies of one population to another. This study (1) identifies the impediments to constructing a phylogenetic taxonomy and both genetic and ecological determinations of conservation units, (2) examines the consequences of delaying such resolution, (3) summarizes the current data base available for systematic studies, (4) compares taxonomic solutions in other terrestrial chelonians, and (5) suggests remedies. A standardized program of sampling that includes all major populations across the entire range of both *G. agassizii* and *G. berlandieri* is proposed to complete the identification of populations and their assignments to mtDNA-based ESU and MU categories. Populations in potential contact zones should be sampled more extensively to determine the absence or extent of gene flow among different ESUs to resolve the identity of species. Finally, morphological, ecological, behavioral and physiological distinctions among populations would establish a complete and broadly based array of DPSs.

HYBRID ZONES BETWEEN TWO TOAD SPECIES

D. M. Green and C. Parent [2003, Copeia 2003(1):34-43] investigated the structure and dynamic history of a mosaic hybrid zone using an analysis of morphometric variation to determine the extent of interbreeding between the species involved in different regions. The hybrid zone between the toads *Bufo americanus* and *B. fowleri* is geographically widespread. Natural hybrids occur in Ontario at Long Point but not along the nearby Niagara Peninsula although the species are sympatric in both places. Discriminant analysis of variation in 27 morphological characters from 286 preserved museum specimens of male toads and putative hybrids was compared with previous allozyme genetic characterization of the same specimens. Reference samples from allopatric populations were used for comparison. *Bufo americanus* from Long Point were significantly different from other samples of the same species, demonstrating introgression in the direction of sympatric *B. fowleri*. Long-term hybridization in this region has been confined to Long Point despite sympatry elsewhere. Thus, the hybrid zone between these toads does not conform to gradient or "tension zone," models. Rather, it is a mosaic in that hybrids appear at some times and in some places but not in others and it conforms to the concept of a "localized sympatric" hybrid zone.

DECLINE OF THE JAMBATO TOAD

S. R. Ron et al. [2003, J. Herpetology 37(1):116-126] report on the jambato toad, *Atelopus ignescens*, endemic to montane forests, inter-Andean valleys, and paramos in Ecuador. Although formerly abundant and widely distributed, the species has not been recorded in nature since 1988. To determine its population status, data from intensive surveys in 1999–2001 are compared with those from 1967 and 1981. Presence-absence data from several localities also are reported. Temperature and precipitation between 1891 and 1999 were analyzed to determine whether these correlate with population trends. *Atelopus ignescens* was abundant in 1967 at Paramo de Guamani (47 individuals recorded in 120 person-minutes) and in 1981 at Paramo del Antisana (up to 0.75 individuals/m^2). In the 1999–2001 surveys, *A. ignescens* was absent despite considerably higher survey efforts. The presence-absence data at several localities also indicate a dramatic decline. Before 1988, *A. ignescens* was present during 64% of the visits to sites throughout its range. After 1988, *A. ignescens* was absent at all sites. The results strongly suggest that *A. ignescens* is extinct. Climatic data show that 1987, the year previous to the last record of *A. ignescens*, was particularly warm and dry. The reasons for the decline in pristine areas remain unclear, although the available information suggests that a combination of factors such as pathogens and unusual weather conditions may have played an important role.

SURVEYING RAIN FOREST HERPETOFAUNA

T. F. Doan [2003, J. Herpetology 37(1):72-81] notes that although several investigators have discussed different herpetofaunal sampling methodologies and their effectiveness, few have quantitatively examined which methods are superior for inventorying reptiles and amphibians in rain forest habitats. She examined two years of data from Tambopata, southeastern Peru, to compare and contrast visual encounter survey (VES) and quadrat methodologies and to determine which method yields the highest number of individuals and species per sampling effort. Four separate questions were posed concerning the number of captures for short-term surveys, long-term surveys, arboreal versus terrestrial amphibian surveys, and particular taxonomic group surveys. Over most of the analyses, more individuals and species of amphibians and reptiles were captured using VES than quadrats. In addition, more unique species were recorded with VES. However, particular microhabitats and taxonomic groups were better sampled with quadrats. In long-term surveys, the methods were equivalent with respect to number of individuals and species captured. This study provides quantitative data on the efficacy of the two methods and describes, for the first time, the particular instances in which the different methods are best suited for sampling rain forest herpetofauna.

DESERT TORTOISE ADAPTATIONS

D. J. Morafka and K. H. Berry [2002, Chelonian Conservation and Biology 4(2):263-287] note that the desert tortoise (*Gopherus agassizii*) has traditionally been viewed as an archetypal desert-adapted vertebrate. However, evidence from historical ecology, phylogenetics, anatomy, physiology and biogeography qualifies this view significantly. Ancestors of *G. agassizii* stabilized as an essentially modern morph some 17–19 million yrs ago, perhaps 12 million yrs before the formation of major regional deserts in North America. Some physiological mechanisms for avoiding or accommodating desert stressors may be symplesiomorphies, primitive character states common to most ectothermic amniotes. Prominent among these are slow metabolic rates and high tolerances for osmotic flux in body fluids. Other functional characteristics for accommodating contemporary aridity are exaptations shared with forest-dwelling batagurid and manourine chelonian antecedents, originally evolved for terrestrialism, not aridity. Large brittle-shelled eggs, herbivory, and a generalized and expansive digestive tract may all be among these symplesiomorphies, at least relative to the gopherine clade. Other anatomical and behavioral features are associated with a fossorial life style which may have developed in sandy habitats within grasslands and along forest edges, where microclimates were semi-arid, but at a time North American landforms had not yet experienced desert aridity. Burrow excavation may have evolved in response to the stress of intense insolation in exposed scrub, grasslands, and meadows, only later serving as protection against cold, heat, and predators. Modern climate and vegetation typical for contemporary populations of *G. agassizii* have only developed episodically during perhaps the most recent 1% of its 3–5 million yr history as a distinct species, and especially during the last 7000 yrs. Biogeographically, neither the testudinids as a group, nor *G. agassizii* as a species, are confined to deserts. Both track more reliably with warm temperate to tropical climates, and appear to be excluded from the extremely and zones with less than 50–80 mm mean annual precipitation, such as the lowland deserts of the Baja California Peninsula, Sahara, Atacama, the Choco, and most of the Arabian Peninsula. Both extant and fossil *G. agassizii* range well beyond the limits of deserts ecologically into thornscrub, woodland, and grassland habitats. Ecologically, *Gopherus* tortoises generally, and Mojave *G. agassizii* in particular, exploit a wide variety of food resources. Preponderant components of the diet are succulent, herbaceous vegetation ranging from cactus fruit to a variety of grasses and forbs. Even carrion and insects can constitute a small portion of the diet. Sclerophyllous vegetation, so characteristic of extreme desert habitats, is largely absent from the diet. The desert tortoise functions well in some, but not all, undisturbed desert landscapes. Its survival is contingent upon a combination of ancient exaptations and contemporary adaptations which resist drought and locally dry microclimates and soils, but evolved long before their desert habitats themselves. Semi-arid steppe vegetation, such the mesquite grasslands of the Tamaulipan Plain may combine habitat attributes that are optimal for the *G. agassizii* ("*Xerobates*") species group, as evidenced by the continuing high densities of group member *G. berlandieri*. Nutritionally, *G. agassizii* is an opportunistic generalist, shuttling through temporally and spatially patchy forage. As a consequence, *G. agassizii* appears to be able to accommodate a wide range of environmental changes. Yet when anthropogenic desertification of a pre-existing desert impoverishes the landscape floristically and depletes forage, the opportunities for continued tortoise survival and recruitment may be significantly compromised.

COEVOLUTION OF EGG SIZE AND PLASTICITY

P. Doughty [2002, Copeia 2002(4):928-937] notes that developmental plasticity and large egg size are traits that can benefit offspring early in life, but their coevolution has rarely been examined. He experimentally manipulated water depth and food availability of larvae of the frog *Crinia georgiana*, a species with a large egg size that breeds in shallow seeps that often dry before tadpoles have metamorphosed. Tadpoles that were never fed completed metamorphosis at about the same time as tadpoles under constant conditions, although at much smaller body sizes and with higher mortality. Except for the earliest stage tested (Gosner stage 28), tadpoles that experienced a decrease in water depth accelerated development and completed metamorphosis earlier than tadpoles kept in constant conditions. Acceleration was not possible when food was withheld, except when water levels were also lowered and only during later developmental stages. Because acceleration of development was initiated at earlier larval stages than in small-egged species that breed in ephemeral water bodies, these data suggest that phenotypic plasticity and maternal provisioning strategies can coevolve to help larvae cope with unpredictable aquatic environments.

ANOLE TOEPADS

T. E. Macrini et al. [2003, J. Herpetology 37(1):52-58] note that anoles (*Anolis*, *Chamaeleolis*, *Chamaelinorops*, *Phenacosaurus*) differ greatly in size and shape of their subdigital toepads. The authors sampled 79 anole species to address two issues. First, is toepad size significantly related to habitat use? Second, do anoles from mainland Central and South America differ from Caribbean anoles in either the size of their toepads or in the relationship between toepad shape and habitat use? Among all anoles, toepad size increases with both perch height and diameter, although when the effects of body size are removed, these relationships are weakened. Morphological differences exist between toepads of anoles from the two regions. Caribbean anoles have larger toepads relative to snout–vent length and wider pads at larger body sizes compared to mainland species. Relationships between toepad morphology and habitat use characteristics do not differ significantly between the two groups of anoles. However, with effects of size removed, Caribbean anoles have larger and wider toepads relative to both perch height and diameter. These findings suggest that anoles in island habitats may require larger toepads than mainland anoles to use their arboreal habitats. The potential functional consequences of these differences in toepad morphology provide a promising avenue for future studies.

SPOTTED TURTLE REPRODUCTION

J. D. Litzgus and T. A. Mousseau [2003, J. Herpetology 37(1):17-23] examined the reproductive output of spotted turtles (*Clemmys guttata*) from a population in South Carolina. They used radiotelemetry, palpation and X-rays to monitor the reproductive condition of females over two field seasons. They present the first evidence for multiple clutching in a wild population of spotted turtles. Of 12 females with radio transmitters that became gravid, five produced second clutches, and one produced a third clutch. Average annual clutch frequency was 1.2 per female. Clutch frequency was independent of body size. Reproductive output was compared among three populations: Ontario, Pennsylvania, South Carolina. Individual clutch sizes varied with latitude. Clutch size was largest in the north (mean = 5.3 eggs), midsized in the central population (3.9), and smallest in the south (2.9). The authors suggest that this pattern is related to seasonality differences, which result in different selective pressures on body size of females. Total annual egg production (the sum of all clutches within a reproductive season) by gravid females did not differ between the Ontario (5.3 eggs) and South Carolina populations (4.6). These data indicate that, although individual clutch sizes differ between northern and southern spotted turtles, total annual reproductive output is consistent in these widely separated populations.

LIZARDS OF PAKISTAN

M. S. Khan [2002, Herpetozoa 15(3/4):99-119] notes that during recent years several lizard taxa were added to the faunal list of Pakistan. Descriptions and new records were scattered in different publications in the herpetological literature. This paper puts the information together, and provides a comprehensive list of recent publications on the lizards of Pakistan. Keys and a checklist to these lizards are also included.

SEX DETERMINATION IN THE DESERT TORTOISE

D. C. Rostal et al. [2002, Chelonian Conservation and Biology 4(2):313-318] report that the desert tortoise, *Gopherus agassizii*, possesses a "Pattern Ia" type of temperature-dependent sex determination (TSD). Incubation temperatures of approximately 30.5°C or below produce all males and incubation temperatures of approximately 32.5°C or above produce all females. The results suggest an estimated pivotal temperature (temperature producing a 1:1 sex ratio) of approximately 31.3°C. Sex determination appears sensitive to temperature as early as embryonic stage 15 or before, and as late as stage 21 depending on the specific incubation temperatures utilized. Sexual differentiation of the gonads becomes histologically noticeable between stages 18 and 21, and the gonads show distinct sexual dimorphism by stage 23. The chronology of temperature sensitivity and gonadal differentiation was similar in *G. agassizii* to that reported for several other turtles with TSD. The pivotal temperature was relatively high, and may reflect the relatively warm habitat of *G. agassizii*. The results also provide a basis for predicting hatchling sex ratios in natural populations based on incubation temperatures.

OFF-ROAD VEHICLES AND TORTOISES

R. B. Bury and R. A. Luckenbach [2002, Chelonian Conservation and Biology 4(2):457-463] examined habitat, abundance and life history features of desert tortoises (*Gopherus agassizii*) on two nearby 25-ha plots in the western Mojave Desert. An unused, natural plot had 1.7 times the number of live plants, 3.9 times the plant cover, 3.9 times the number of desert tortoises, and 4 times the active tortoise burrows than a nearby area used heavily by off-road vehicles (ORVs); these differences between the plots were all statistically significant. Further, the few large-sized tortoises in the ORV plot had less mass than those in the unused area. Although the scope of this study was limited to one paired-plot comparison, current data suggest that the operation of ORVs in the western Mojave Desert results in major reductions in habitat and tortoise numbers, and possibly the body mass of surviving tortoises. Recent ORV activities in the unused area negated our original design for a long-term comparison of tortoises in two relatively large, nearby control vs treatment plots. Operation of ORVs is now a major recreation in the southwestern U.S. and its effect on wildlife merits increased research studies and management attention to better protect remaining natural resources.

ALIEN PLANTS AND FIRE

M. L. Brooks and T. C. Esque [2002, Chelonian Conservation and Biology 4(2):330-340] report that alien plants and fire have recently been recognized as significant land management problems in the Mojave and Colorado deserts. Annual species dominate the alien flora, although only *Bromus rubens*, *Schismus* spp., and *Erodium cicutarium* are currently widespread and abundant. These species can compete with native plants, and *B. rubens* in particular has contributed to significant increases in fire frequency since the 1970s. Native desert plants are often poorly adapted to fire, and recurrent fire has converted native shrubland to alien annual grassland in some areas. Changes in plant communities caused by alien plants and recurrent fire may negatively affect native animals such as the desert tortoise (*Gopherus agassizii*) by altering habitat structure and the species composition of their food plants. The dominance of alien annual plants and the frequency of fire may increase in the future due to increased levels of urbanization and atmospheric nitrogen and carbon dioxide. Increases or decreases in rainfall could also cause changes in alien plant dominance and fire frequency. Land managers should focus on early detection and eradication of new alien species, especially those that pose significant fire threats, and on law enforcement to minimize the frequency of ignitions by humans. Additional information on the ecology and effects of invasive plants and fire in the Mojave and Colorado deserts are needed to develop effective management plans.

Advertisements

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, $.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutrtionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, $.17 each; fuzzies, $.24 each; hoppers, $.30 each; weanling, $.42; adult, $.48. Rats: starting with pinks at $.45 each, to XL at $1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. P.O. Box 85, Alpine TX 79831. Call us **toll-free** at (800) 720-0076 or visit our website: http://www.themousefactory.com.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at $20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice availabe: small newborn pinks up to jumbo adults. Prices start at $25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: **Pillstrom Snake Tongs** are available from the manufacturer and are shipped worldwide. Lengths/prices: 26"/$58, 36"/$59, 40"/$60, 46"/$61, 50"/$62. Shipping and handling costs in the U.S.: $8 for the first tong, $1 for each additional. Pillstrom Tongs, 4617 Free Ferry Road, Fort Smith AR 72903-2363, (479) 452-3001 phone, (479) 452-3671 fax. E-mail: pillstromt@aol.com. Website <members.aol.com/mpillstrom>.

For sale: herp books. *The Amphibians and Reptiles of Alabama* by Robert Mount, 1975, 345 pp., 350 b&w photos and maps, softbound, $25; *The Amphibians and Reptiles of Illinois* by Philip Smith, reprinted 1971 (1961), 298 pp., 251 figs., softbound, $25; *Reptiles and Amphibians of the Cimarron National Grasslands, Morton County, Kansas* by Joseph and Suzanne Collins, 1991, 60 pp., 40 color photos, softbound, $12; *The Big Cats, The Paintings of Guy Coheleach*, 1986 (1982), 243 pp., 154 illustrations including 59 full color plates of Coheleach's paintings, as-new condition, hardbound, $42; *Some Common Snakes and Lizards of Australia* by David McPhee, 1966 (1959), 125 pp., many b&w photos, small, pocket-size book, some pages slightly warped by water damage, softbound, $26; *A Field Guide to the Reptiles of the Australian High Country* by R. Jenkins and R. Bartell, 1980, 278 pp., many color photos, hardbound, $26. All books in excellent condition except as noted. Orders for $25 and more include postage; $2.50 postage and handling for orders under $25. William R. Turner, 6014 Blue Ridge Dr., Apt. A, Highlands Ranch, CO 80130, (720) 344-6197; E-mail: naturetours@mailstation.com

For sale: huge reptile sculpture made out of car bumpers 10 feet × 10 feet. Must see! Needs an outdoor home. Best offer! Ingrid (artist) 773-472-2626.

For sale: Brand new Neodesha cage sets. Available in 24" and 36". Two sets available in each size. Set includes cage with glass door and hide box. The 24" set also includes a water bowl. All items unused. 24" sets are $45.00 each. 36" sets are $75.00 each. Also, African house snake, *Lamprophis fuliginosus*, male, 18 months, red phase, $35; African house snake, *L. fuliginosus*, female, 18 months, green phase, $40. Or $70 for the pair. E-mail Jim Hoffman at james-hoffman@attbi.com or call 847-534-4980. Chicago area.

For sale: Now accepting reservations for the following **rare & unusual** garter snakes. A 20% refundable deposit guarantees your place on a waiting list. Orders paid in full by May 1, 2003 receive a 10% discount. Here's the list of expected 2003 offspring: **Easterns**, (Erythristic × melanistic), erythristics, $100, melanistics, $35, erythristic (pure), $100, super flames (erythristic/Blais flames × erythristic/Blais flames), ?; Blais speckled flames, $125, Blais flames, $100, Blais peach, $50, melanistic, $35 each & het melanistic (Florida × melanistic), $25. **Plains**, red/anerythristic × red/anerythristic ?, red/hypo × albino × red/hypo × albino ?, snows (Iowa and Nebraska strains) $275, albinos (Iowa and Nebraska strains), $100, anerythristic, $50, axanthic × Iowa albino (axanthic has a lime green dorsal stripe), $50, quad het, $85, Christmas albino, $200, super Christmas albino (Christmas × red/albino), $300, possible hets, $35 & normals, $25 ea/2 for $40. **Red-sideds**, albinos (limited number available), $350, possible het albinos (66%), $50, anerythristic, $100, het anerythristic, $50, possible het anerythristic (66%), $35 & normals, $25 ea/2 for $40. Florida "true" blue-striped (***similis***), $40–100, **Santa Cruz** (orange and yellow morphs), $60, **California red-sided**, $125, **Wandering** albino, $150, het, $75 & normals, $25 ea/2 for $40. (?= Price is to be determined at birth). Questions, E-mail: SFelzersgarters@nc.rr.com or call Scott, (919) 365-6120 EST, thanks! Web address: http://www.thamnophis.com/features/ScottFelzer/

Herp Tours: Why pay more? Travel with the International Fauna Society, a 501 (c)3 not-for-profit organization, and experience the Costa Rican rainforest! Stay at the beautiful Esquinas Rainforest Lodge in the untouched herpetological paradise that is Piedras Blancas National Park. Meet new friends, relax in the naturally-filtered swimming pool or in the lush, fauna-filled tropical garden. May 3–10, 2003, $1195 per person excluding airfare. Discounts for IFS and Chicago Herp Society members. For details, visit The International Fauna Society website at www.faunasociety.org or E-mail: joea@faunasociety.org.

Herp tours: Adventure trips to **Madagascar**! Journey somewhere truly unique to seek and photograph nature on the world's least-studied mini-continent. For maximum herp fun and discovery, join Bill Love as we go where few people will ever venture in their lives. Let his experience assure a comfortable tour finding the most colorful and bizarre species on the planet! Get all the details at Blue Chameleon Ventures' comprehensive new website: <http://www.bluechameleon.org>, E-mail: bill@bluechameleon.org, or call (239) 728-2390.

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Pet Services in Your Home: **All Pets, Unlimited** is owned by a licensed, certified and bonded veterinary lab technician with >20 yrs. experience. This service specializes in patient care as well as caring for your pets in your absence. **Exotics** are welcome and the service is veterinarian recommended. Please call Beverly McGrane for pricing information @ (312) 328-0648.

Wanted: We need a person who can assist in the care and maintenance of an extensive tortoise collection. Our primary concern is in having a dependable care-giver while we are gone on a few weekends per year but particularly while we travel for a week at a time 2 to 3 times per year. Must have a passion for animals and have a basic understanding of the environmental and dietary requirements of reptiles; tortoises and turtles especially. Far Northwest Suburb. We will train the right person. If you are or know of anyone who is responsible and dependable and has the interest in learning, please contact: Bob or Denise Krause, (847) 844-1328 or E-mail: robertk@superpet.net.

Advertisements (cont'd)

Wanted: I'm looking for my soulmate. I want to settle down to a family before it is too late. But I have this problem. . . . When we get into hobbies and interests: old popular records, jazz and show tunes, and antique electronics are fine, but when I mention turtles, "What, are you crazy?" So maybe this is a better place to look. Please don't try to separate me from my turtles—at least not most of them. If interested, please drop a line to Ellis Jones, 1000 Dell, Northbrook IL 60062, telling a bit about yourself and giving a phone number.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Line ads in this publication are run free for CHS members—$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: <MADadder0@aol.com>.

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UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, May 28, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. Local member **Gary Fogel** will speak on "Maintaining *Cordylus* Species in the Home Environment." Having successfully raised and bred a large number of cordylid lizards indoors over the past eighteen years, Gary will give an overview of three different species of these distinctive South African lizards: *Cordylus cataphractus*, *Cordylus warreni depressus* and *Cordylus giganteus*. In addition to providing us with details of his husbandry techniques, we can rely on Gary to liven up his program with a variety of anecdotes and situations that have arisen over the years. If viviparous (live-bearing) lizards are your cup of tea, then this talk is for you.

Our always popular annual **Show & Tell** meeting will take place June 25. All members are encouraged to bring a favorite animal and to be prepared to come up on stage and tell us something about the animals they have brought.

The regular monthly meetings of the Chicago Herpetological Society are held at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the June 13 board meeting, to be held at the North Park Village Administration Building, 5801 North Pulaski Road, Chicago. To get there take the Edens Expressway, I-94, and exit at Peterson eastbound. Go a mile east to Pulaski, turn right and go south to the first traffic light. Turn left at the light into the North Park Village complex. At the entrance is a stop sign and a guardhouse. When you come to a second stop sign, the administration building is the large building ahead and to your left. There is a free parking lot behind the building.

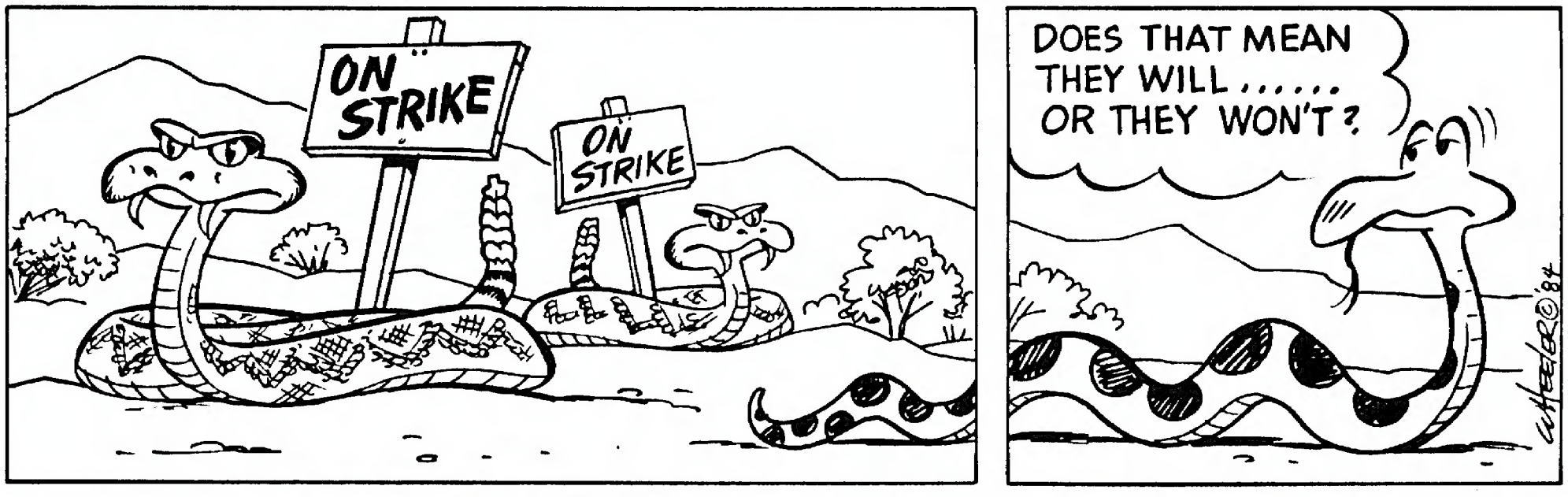
The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: http://www.geocities.com/~chicagoturtle.

HERP OF THE MONTH

Each monthly meeting will showcase a different herp. CHS members are urged to bring one specimen of the "Herp of the Month" to be judged against the entries from other CHS members. Prizes will be awarded to the top three winners. For the May meeting bring any **monitor lizard**. Because of "Show & Tell" there will be no Herp of the Month competition in June.

THE ADVENTURES OF SPOT



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